FEB 1 - 1932

The Responsibility of Members to the Pharmaceutical Profession Is in the Support Given to Its Organizations, so That These May Function Properly; Coöperation Means Not Only Support but Insistence in Protecting Public Health and Promoting General Welfare.

Vol. XXI, No. 1 JANUARY, 1932

JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

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Published Monthly by the American Pharmaceutical Association: Office of publication, 20th & Northampton Sts., Easton, Pa. Editorial Office, 10 West Chase St., Baltimore, Md. Annual Subscription, $4.00; Single Numbers, 35 Cents.

THE 80th ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN TORONTO, CANADA, IN 1932—August 22nd–27th, Royal York Hotel, Headquarters, R. B. J. Stanbury, 43 Victoria St., Toronto 2, Canada, Local Secretary.

The 1932 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conference of Pharmaceutical Association Secretaries, of the Pharmaceutical Law Enforcement Officials and the Plant Science Seminar will also be held in Toronto.

Entered as second-class Matter, January 23, 1917, at the Post Office at Easton, Pa., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103. Act of October 3, 1917; authorized July 10, 1918.

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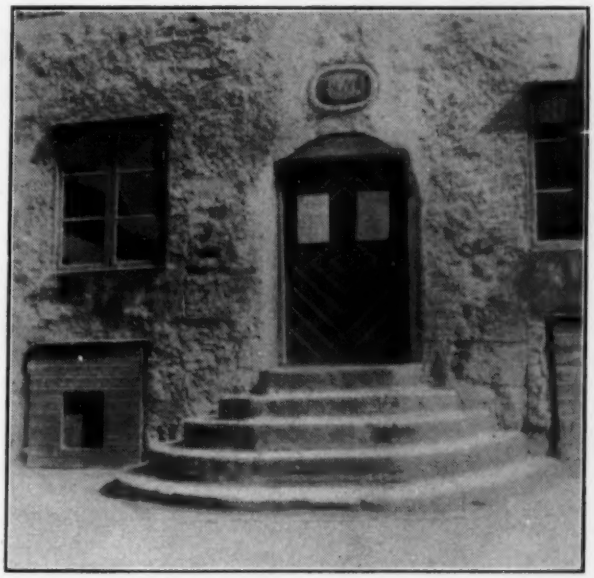
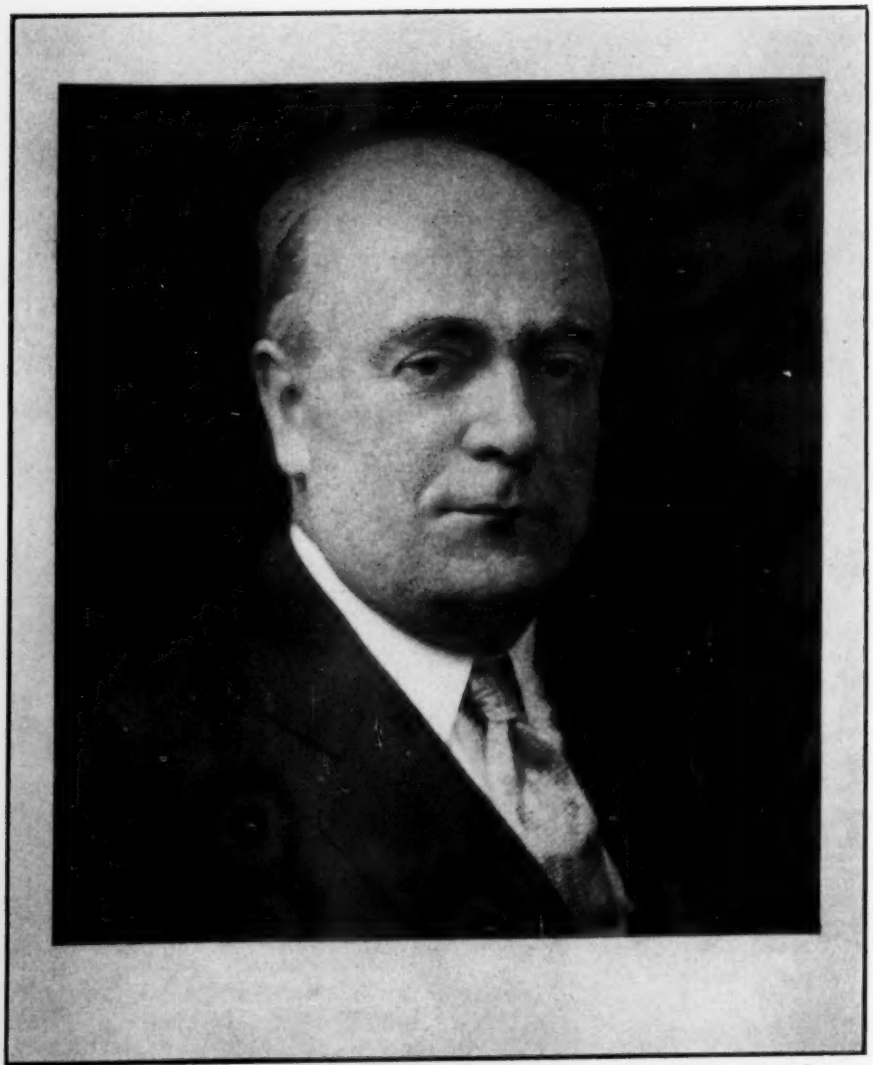
TWO OLD EUROPEAN PHARMACIES.*

TALLINN (formerly Reval) is the capital of Esthonia, situated on the East coast of the Baltic. Another City of the State is Tartu (Dorpat) where Dr. Dragendorff studied and taught. The pharmacy shown was established in 1422 as the "Apotheka Magistratus Revaliensis," and here, ten generations of the Butchart family (1616–1853) practiced pharmacy; it is now owned by pharmacists Rudolph Lehbert and Karl Schneider. On the occasion of the 500th anniversary illuminated addresses were presented to the firm. Recently the pharmacy has been remodeled; much of the old apparatus is on display in the provincial museum and some is stored in the basement of the pharmacy. It is hoped, later, to prepare a more comprehensive article from data we have.

VISBY was the capital of the former ancient kingdom of Gottland. For centuries, until 1896, when the present building replaced that of its venerable antecedent, the pharmacy was known as Apoteket—Visby, now as the "Old Apothecary Shop;" the old sign, in stone, is seen over the doorway. The pharmacy has a well-equipped laboratory and employs five pharmacists and three assistants; the proprietor is Wilhelm Lindstrom, Nestor of the Apotekares of Sweden.



* Courtesy of the *Journal and Pharmacist*, and of William Mair.



Courtesy of Druggists Circular

WALDEMAR BRUCE PHILIP.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XXI JANUARY, 1932 No. 1

THE PRESIDENT-ELECT OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Waldemar Bruce Philip was born in Sacramento, Calif., July 19, 1878. His mother died when he was three years old and Bruce was placed in care of a friend of the family until, nine years later, his father re-married.

The youth attended the grammer and high schools of Sacramento and during some of these years he had a carrier's route for the daily *Sacramento Record-Union*, necessitating very early rising and a long day. His contact in the family of Dr. C. N. Miller had instilled the desire to become a druggist, and he had also resolved to earn the money for his college education. After graduation from high school he went in search of employment in a drug store and, finally, found it in the store of O. P. Willis, an establishment of the old type.

Bruce joined the local signal corps company of the National Guard and this secured for him two weeks at camp. His desire had been to serve in the Spanish War, but sickness prevented his enlistment. He then secured a place in George Munroe's drug store at Fresno; the personnel of the store and the physicians who patronized the pharmacy were of the highest type, and this contact influenced the ideals of the young man, who, by the end of the year, had saved enough money for beginning his college work. He secured a position with Dr. Albert L. Scholl in San Francisco and matriculated at San Francisco College of Pharmacy. Before finishing the two-year course at college he had become registered and returned to Sacramento, engaging with his former employer, the firm then being Willis and Martin, and after a year of service he became a partner in the business.

In 1903, Mr. Philip entered for the Doctor of Pharmacy course in New York College of Pharmacy and, after completion of the work, returned to the Sacramento pharmacy, but remained only until fall. On November 24, 1904, he married Miss Fayetta Harris, a classmate at the California College of Pharmacy. In February of 1905 the firm of Philip and Philip was opened for business in Fruitvale; when, later, the rent was raised they purchased a lot near the store and put up their own

building. At this period two branch stores were opened, but were later disposed of; however, they retained ownership of the buildings.

About ten years ago Mr. Philip suggested the advisability of organizing the druggists of San Francisco, and, as a result, the Alameda County Association and the San Francisco Retail Druggists' Association were formed and these have enjoined and profited by the distinctive service rendered them.

The Hastings College of Law, of the University of California, was opened in 1920 with our fellow member as a matriculant; he passed the bar examination and was admitted to the bar in 1923. His law practice is limited by his self-imposed rule—there must be a druggist in the case.

The Mask, of April 1931, summarizes some of Mr. Philip's above activities as follows: In 1901 he graduated from the California College of Pharmacy; for ten years he has been lecturer and instructor in commercial pharmacy and pharmacy laws; he is a past-president of the alumni association; started its loan and model pharmacy funds.

He has been president of the Alameda County Pharmaceutical Association, chairman of its executive and legislative committees; secretary of the latter and also of the Retail Druggists' Association of San Francisco; suggested the students' loan fund of these organizations. He is a past-president of the San Francisco Secretaries' Club. He is a member of the alumni association of New York College of Pharmacy and of Philadelphia College of Pharmacy and Science; the latter institution honored him with the Ph.M. degree. He is a member of the San Francisco Bar Association and also of the State association; of the American Chemical Society and of the American Association for the advancement of Science; member of the Board of Trustees, U. S. P. XI. He is serving his third term as Grand Regent of Kappa Psi Pharmaceutical Society.

Mr. Philip has been vice-president of the N. A. R. D., member of its resolution committee, national legislative committee and is now the Counsel, located at Washington, D. C.

He has been vice-president of the Council, Chairman House of Delegates, Committee on Resolutions, other important committees and is now the president-elect.

Mr. and Mrs. Philip have two children—Mercedes L., graduate of the University of California (1929) and Harold M., who is attending the University of Oregon.

On January 2nd, Dr. George H. Simmons, *editor* and *general manager emeritus* of the American Medical Association reached his 80th birthday. The AMERICAN PHARMACEUTICAL ASSOCIATION joins in the felicitations of organized medicine. "From 1898 until 1924 he served the American Medical Association as a leader who brought it from a small body with practically no assets and an insignificant publication to a great organization, financially sound, with the greatest medical journal in the world, and with numerous bureaus, departments and councils that have exercised magnificent leadership in their special fields. In 1924 he retired and has spent his time since that date in travel and in recreation during the summer in Chicago and in winter at his residence in Hollywood-by-the-Sea, Florida. The record of his achievements is written daily in the work of the organization that he so wisely builded."—Quoted portions from *Jour. A. M. A.*, of January 2, 1932.

EDITORIAL

E. G. EBERLE, EDITOR 10 West Chase Street, BALTIMORE, MD.

1932.

DR. FREDERICK HOFFMANN said in his comprehensive address at the 50th anniversary meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION: "It is a credit to the pharmacists that the disappointment experienced in consequence of the failure of the drug law to promptly and efficiently remedy the inferiority of the drug market induced them to take united action, which resulted in the formation of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The convention of 1852, in Philadelphia, resulted in the organization of the body which has ever since exerted its endeavor in the promotion of pharmacy, seeking always to serve the body-pharmaceutic and thereby the public in the betterment of public health and welfare.

"A plan presented to both the American Medical Association and the AMERICAN PHARMACEUTICAL ASSOCIATION at their annual meeting in Philadelphia in the year 1876, that the former Association take absolute charge of the further revision and publication of the Pharmacopœia, was rejected by the Medical Association at its subsequent meeting in Chicago in the year 1877, while the AMERICAN PHARMACEUTICAL ASSOCIATION promptly adopted a resolution at its meeting in Toronto, as the representative organization of American Pharmacy, henceforth to undertake, or at least to more efficiently participate in the decennial revisions and the editing of the United States Pharmacopœia."

In the enactment of the Pure Food and Drugs Act, in 1906, the National Formulary became a legal standard. As Dr. J. H. Beal said in his address at the St. Louis meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION: "The AMERICAN PHARMACEUTICAL ASSOCIATION not only substantially re-created and insured the continuation of the United States Pharmacopœia as an independent publication, and almost wholly created the National Formulary, but when the Federal Food and Drugs act was enacted in 1906, it succeeded in securing the adoption of these two volumes as Standards of the Act, which has been followed in turn in all state food and drug departments."

"In thus securing the adoption of the Pharmacopœia and National Formulary as legal standards, the ASSOCIATION rendered one of the greatest possible services to the whole of pharmacy, and saved it from the menace of constantly changing standards of bureaucratic creation."

In 1915 the AMERICAN PHARMACEUTICAL ASSOCIATION undertook a study of so-called patent medicines (see JOURNAL for 1915) and, as a result, decided improvements in the composition and advertising literature followed. It will thus be recognized that the ASSOCIATION has always sought to render service in the matter of public health and betterment of pharmacy.

More recently the "Pharmaceutical Recipe Book has been published with a purpose of standardizing as far as possible formulas not officially recognized. Surveys are being carried on to determine the extent of prescription practice. The Conferences of Pharmaceutical secretaries and Law Enforcement Officials are engaged in rendering a better service in the respective fields. Thus the ASSOCIATION

is constantly engaged in improving pharmacy, developing its research, in its practice and educational advancement; its 1932 program of action is concerned with every phase of the profession.

INFLUENCES THAT PROMOTE ENDEAVOR.

A MULTIPLICITY of legislative proposals brought about the formation of the National Drug Trade Conference; it resulted in bringing together the divisions of pharmacy and the drug industries. At the meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION, in Denver (1912), it was proposed that a conference be called, made up of delegates from the various national pharmaceutical associations to consider the subject of legislation, both stage and national, in its relation to pharmacy. The conference met in Washington, D. C., January 1913, with John C. Wallace as temporary chairman and James H. Beal as temporary secretary.

Five national bodies were represented by delegates: The AMERICAN PHARMACEUTICAL ASSOCIATION, the National Wholesale Druggists' Association, the National Association of Manufacturers of Pharmaceutical Products, The American Association of Pharmaceutical Chemists and the National Association of Retail Druggists.

A purpose of the Conference was indicated by the presence of Dr. Hamilton Wright and Hon. Burton Harrison, who had a large part in the proposed national anti-narcotic legislation; Martin I. Wilbert, as representative of the American Medical Association, was tendered the privileges of the floor. As a result of the initiatory work of the Conference this legislation was passed in better form than would have resulted without the efforts of this body—an exemplification of what may be accomplished by united endeavor.

The code of rules and regulations of the Conference stated that the objects of the body "shall be to consider and report to the respective constituent organizations represented therein upon matters of legislation, or upon any other matters of national and general importance to the drug trade."

"The Conference will not assume to express the views of, nor to bind its respective organizations, except in so far as it may be authorized so to do by such constituent organizations."

Since then, 1913, the conference has admitted other organizations as follows: The Proprietary Association, National Association of Boards of Pharmacy, American Association of Colleges of Pharmacy and the Federal Wholesale Druggists' Association. Many important actions have resulted since its organization meeting and a number of important proposals are being brought into shape. The value of the efforts of the Conference has been and is in bringing the bodies represented, in a united front, to the support of measures being promoted by one or the other or all of the constituent organizations; or, equally important, to take a firm stand against selfish or ill-advised efforts that do injury to pharmacy's part in public health service.

Dr. James H. Beal, at the San Francisco meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION (1915) said in part: "We desire to advance our professional and business interests because we are human, but we desire also to advance

the general public interest; first, because we are good citizens, and second, because we realize that class advantage gained at the expense of the general welfare can have only ephemeral existence, and that in the end the holders of special privileges must come to disaster.

"Pharmacy ought not to have, and I believe does not want, coddling legislation or special privileges gained at the expense of the remainder of the community. If the art of the pharmacist survives, it will be because it is able to serve the material interests of society better than the instrumentalities which seek to supplant it. Unless it can justify its existence by serving some useful part in the grand purpose of things we must expect it to pass like other arts that have outlived their usefulness."

"The only logical foundation for a law regulating admission to the practice of pharmacy is the necessity of protecting society against the consequences which might be expected to follow the dispensing of drugs and poisons by ignorant persons, or by persons so morally perverted that they will readily lend themselves to the service of evil, which, owing to the peculiar nature of the business, can be carried on with comparative immunity against detection. If the above reason be the true one, and the imposition of certain educational and moral tests upon those who desire to engage in the business of selling drugs and poisons does really minister to public security, then existence of the law is justified, and the only important problem is to determine the height of the educational wall which must be climbed by those seeking admission. Doubtless, the public advantage would be served by raising this wall to such a height that only those who were educated to the very highest degree of efficiency and of the very highest type morally would be granted the privilege of compounding and dispensing drugs, medicines and poisons.

"Such would be the character of the tests imposed in a theoretically perfect state, but we do not have a theoretically perfect state to experiment with, and therefore must fit our requirements to the present imperfect one. In other words, our ideals are subject to the practical limitations imposed by the necessity of fitting them into the social state in its present imperfect condition."

The responsibility of members to the pharmaceutical profession is in the support given to its organizations so that these may function properly; coöperation means not only support but insistence in protecting public health and promoting general welfare and that the individuals be not swerved by selfish motives. Taken as a whole, pharmacy has an enviable record in public health matters and promotion of general welfare; it has, invariably as a group service, placed these efforts above individual interests. The records on anti-narcotic legislation prove the pharmacists' high purpose relative to restriction of pharmaceutical practice; the members have not been sufficiently militant in insisting on their rights in carrying on their duties.

The last meeting of the National Drug Trade Conference exemplified that whenever all interests of the Conference disinterestedly put on a united front, success is reasonably certain. An abstracted report of the meeting appears in the December JOURNAL, page 1358.

"I know of no profession, no matter how high its ideals nor advanced its code of ethics, that does not have among its practitioners some who are not motivated by these ideals and professional ethics."

SCIENTIFIC SECTION

THE QUATERNARY AMMONIUM HALIDES OF EPHEDRINE.*

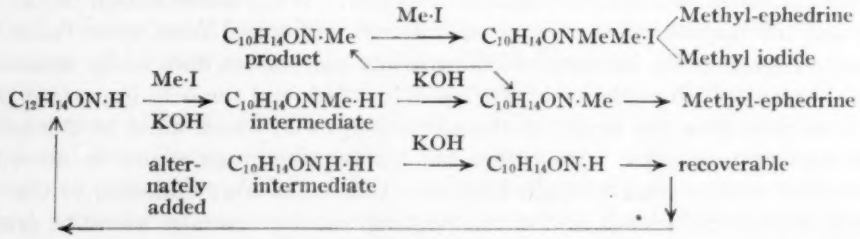
BY C. T. FENG.[1]

INTRODUCTION.

During the preparation and study of "some derivatives of ephedrine" (4), the quaternary ammonium halides were left for further investigation. Our experiments showed that methylation of ephedrine with an equivalent of methyl iodide, yielded about 23 per cent of methyl-ephedrine, 30 per cent of methyl-ephedrine-methyl-iodide as a by-product, 35 per cent of the alkaloid was recovered unchanged, and 12 per cent was lost in residues. These reactions can be expressed as follows:

1. The theoretical.— $C_{10}H_{14}ON{\cdot}H + Me{\cdot}I \longrightarrow C_{10}H_{14}ON{\cdot}Me\ \ H{\cdot}I$

2. The experimental.—



Our modified methylation method previously reported (4) has been improved to increase the production of methyl-ephedrine, but we have now utilized this method for a study of:

1. Methods for isolating and purifying methyl-ephedrine-methyl-iodide, $C_{10}H_{14}ONMe$-$Me{\cdot}I$.
2. Methods of converting the quaternary iodide into methyl-ephedrine-methylchloride, $C_{10}H_{14}ONMeMe{\cdot}Cl$, and methyl-ephedrine-methyl-bromide, $C_{10}H_{14}ONMeMe{\cdot}Br$.
3. A comparative study of these three quaternary ammonium halides.

Methyl-ephedrine-methyl-iodide has been synthesized by Schwantke (6), (1), and recently by Sydney Smith (7). Methyl-ephedrine-methyl-chloride has been synthesized by Eberhard (3), (2), (1). By our modified methods, the former can be obtained in pure condition from the methylation mixture in preparing methyl-ephedrine, and can be readily transformed into the latter. Methyl-ephedrine-methyl-bromide is a new compound not previously cited in the literature upon ephedrine. The main contribution of the present paper is the report of the particular properties, reactions, tests, etc., of these three halides.

PRODUCTION OF METHYL-EPHEDRINE-METHYL-IODIDE ($C_{10}H_{14}ONMEME{\cdot}I$).

Methylation.—The following solutions were prepared.

* Received for publication December 15, 1931.

[1] Department of Pharmacology, Peiping Union Medical College.

1. 100 Gm. ephedrine HCl treated with 100 cc. (one equivalent) of 5-N · KOH in methyl alcohol.
2. 75 Gm. (one equivalent) of methyl iodide dissolved in methyl alcohol to form 320-cc. solution.
3. 100 cc. (one equivalent) of 5-N · KOH in methyl alcohol diluted with methyl alcohol to 160 cc.

Solutions 2 and 3 were slowly and alternately added to 1 in the manner described in our last paper (5). This procedure was completed in 32 hours. Then an excess of about 10 cc. 5-N · KOH in methyl alcohol was added. After filtration and air-evaporation, an alcoholic residue was obtained containing methyl-ephedrine, methyl-ephedrine-methyl-iodide, unchanged ephedrine and a residue of potassium halides and the excess of potassium hydroxide.

Separation.—By treating the alcoholic residue with 20–40 cc. of 5-N · KOH in water and extracting it with portions of ether, methyl-ephedrine and the unchanged ephedrine were completely removed, leaving the methyl-ephedrine-methyl-iodide in the alkaline residue. After washing with small portions of cold water it was rendered almost free from the potassium compounds. It was then dissolved in 95 per cent alcohol, filtered, gently evaporated to dryness and finally washed with portions of ether.

Crystallization.—The well-washed product was purified by crystallization from hot water. By fractional crystallization from dilute aqueous solution, pure methyl-ephedrine-methyl-iodide was obtained in rhombic plates (Fig. 1) with constant properties.

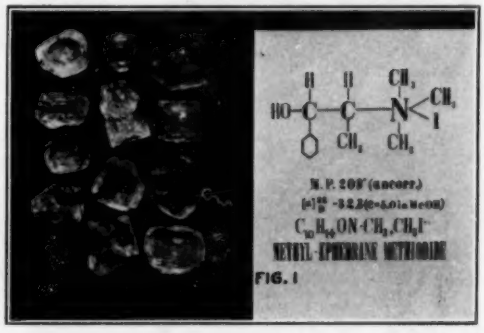


Fig. 1.—Methyl-ephedrine-methyl-iodide (ordinary type), illustrated with structural formula.

Properties.—Melting point 208.0–209° C. (uncorr.); $(\alpha)_D^{22}$ −32.3° in methyl alcohol (c = 5.0); $(\alpha)_D^{22}$ −22.3° in water (c = 5.0); Iodine 39.45% (theoretical 39.53%); "Biuret test" no color reaction.

It has a fairly bitter taste, insoluble in ether, readily soluble in alcohol and hot water but sparingly soluble in cold water. It readily crystallizes out in different forms from aqueous solutions according to the concentration in rhombic, plate like, prismatic, and other types (Fig. 2). It is one of the ephedrine derivatives which has been found absolutely negative to the "Biuret test" while the others are somewhat positive (4), (5). Its particular tests and reactions will be described under the heading of the "comparative study of the quaternary ammonium halides of ephedrine."

FORMATION OF METHYL-EPHEDRINE-METHYL-CHLORIDE, $C_{10}H_{14}ONMEME{\cdot}CL$.

I. PREPARATION BY DISPLACEMENT METHOD.—It was found in testing methyl-ephedrine-methyl-iodide that free chlorine can displace iodine in this compound as well as iodine in the alkali-iodides, thus,

$$2C_{10}H_{14}ONMeMe{\cdot}I + Cl_2 \longrightarrow 2C_{10}H_{14}ONMeMe{\cdot}Cl + I_2$$

This test suggested preparing methyl-ephedrine-methyl-chloride by passing chlorine gas into an aqueous solution of the iodide. The precipitate of iodine liberated was removed by filtration. The filtrate was washed with successive portions of chloroform so as to get rid of the dissolved halogens. After completion of the reaction, the crude product was prepared by evaporation and pure crystals were obtained from alcoholic solution of the residue and subsequent addition of ether. The pure compound was obtained in prismatic plates (Fig. 3) and other types (Fig. 5 and 6): m. p. 245.0° C. (uncorr.) with decomposition; $(\alpha)_D^{22} - 31.2°$ in water ($c = 5.0$). Eberhard prepared this compound by treating methyl-ephedrine-methyl-iodide with silver chloride (2), (1) and reported that he obtained it in right-angled plates, with a melting point of 230°, $(\alpha)_D^{15} = 30.54°$. We have tried out his method and found that the silver chloride precipitate does not give a ready

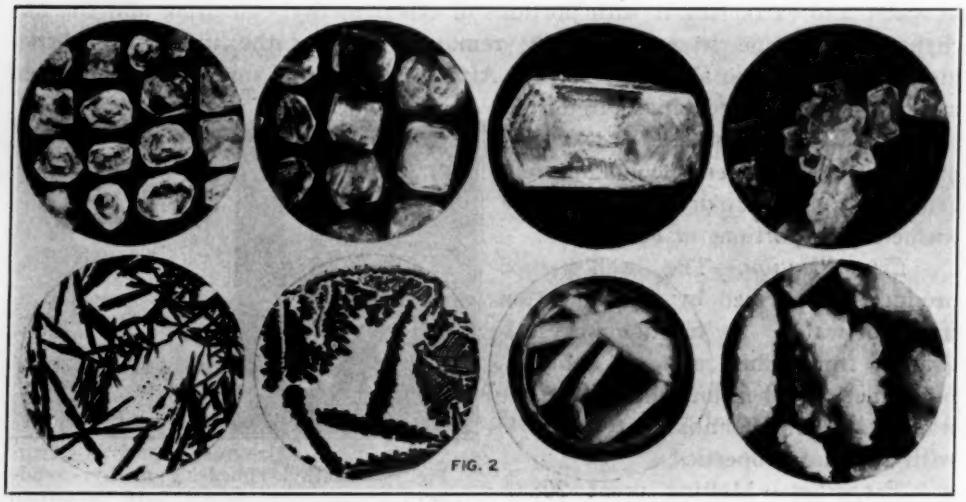


Fig. 2.—Various forms of crystals of methyl-ephedrine-methyl-iodide from different concentrations of aqueous solutions (including eight).

and complete reaction in this transformation on account of its low solubility and instability, but when dissolved in ammonia water, it gives the desired result, described as follows:

II. Modified Transformation Method.—About 5 Gm. of pure silver chloride were freshly made from 6 Gm. of pure silver nitrate and then dissolved in concentrated ammonium hydroxide forming an ammonical solution of $Ag(NH_3)_2Cl$. This was poured into an aqueous solution of 10 Gm. of methyl-ephedrine-methyl-iodide with stirring. The mixture was boiled until the color of the precipitate was changed from white ($Ag(NH_3)_2I$) to yellow (AgI) so as to complete the following reaction:

$$Ag(NH_3)_2Cl + C_{10}H_{14}ONMeMe\cdot I \longrightarrow Ag(NH_3)_2I + C_{10}H_{14}ONMeMe\cdot Cl$$
$$\downarrow$$
$$2NH_3 + AgI$$

After cooling the mixture was filtered. The filtrate was tested for the complete removal of iodides, and then gently evaporated to dryness. The pure product

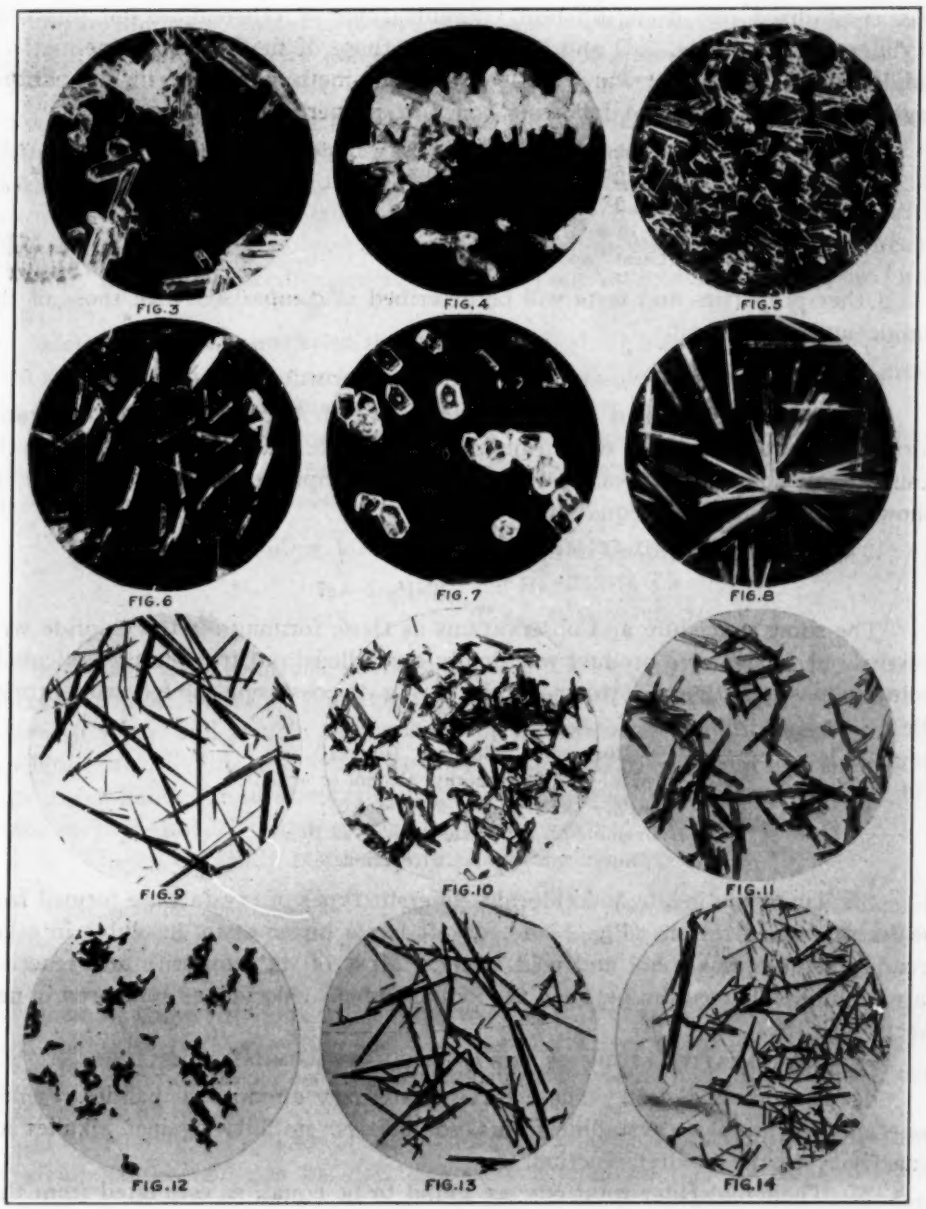


Fig. 3.—Methyl-ephedrine-methyl-chloride (ordinary type). Fig. 4.—Methyl-ephedrine-methyl-bromide (ordinary type). Fig. 5.—Methyl-ephedrine-methyl-chloride from ethereal-alcoholic solution. Fig. 6.—Methyl-ephedrine-methyl-chloride from concentrated ethereal-alcoholic solution. Fig. 7.—Methyl-ephedrine-methyl-bromide from ethereal alcoholic solution. Fig. 8.—Methyl-ephedrine-methyl-bromide from concentrated ethereal-alcoholic solution. Fig. 9.—Methyl-ephedrine-methyl-dichromate (the only type). Fig. 10.—Methyl-ephedrine-methyl-auric-chloride. Fig. 11.—Methyl-ephedrine-methyl-auric-bromide. Fig. 12.—Methyl-ephedrine-methyl-auric-iodide. Fig. 13.—Methyl-ephedrine-methyl-platinic-chloride. Fig. 14.—Methyl-ephedrine-methyl-platinic-bromide.

was crystallized out from different concentrations of ethereal-alcohol mixtures in different forms (Fig. 3, 5 and 6) similar to those of methyl-ephedrine-methyl-iodide (Fig. 1 and 2). Pure methyl-ephedrine-methyl-chloride in its various crystalline forms have the following constant properties:

Melting point, 245.0° C. (uncorr.) with decomposition;
$(\alpha)_D^{22} - 45.2°$ in methyl alcohol ($c = 5.0$);
$(\alpha)_D^{22} - 31.2°$ in water ($c = 5.0$);
Chlorine 15.40% (theoretical 15.44%);
"Biuret test" no color reaction.

Other properties and tests will be described in comparison with those of the iodide and the bromide.

FORMATION OF METHYL-EPHEDRINE-METHYL-BROMIDE ($C_{10}H_{14}ONMEME{\cdot}BR$).

By using an equivalent of AgBr in the place of AgCl required by the transformation method, methyl-ephedrine-methyl-bromide was readily formed in the ammoniacal solution by boiling till the white precipitate changes to yellow, as shown by the following equations:

$$Ag(NH_3)_2Br\ C_{10}H_{14}ONMeMe{\cdot}I \longrightarrow Ag(NH_3)_2I + C_{12}H_{14}ONMeMe.Br$$
$$\downarrow$$
$$2NH_3 + AgI$$

The same procedure and observations as those forming for the chloride were carried out. The pure product was finally crystallized out from ethereal-alcoholic solution mostly in rhombic, prismatic plates (Fig. 4) possessing the following properties:

Melting point, 238.0° C. (uncorr.);
$(\alpha)_D^{22} - 37.9°$ in methyl alcohol ($c = 5.0$);
$(\alpha)_D^{22} - 25.8°$ in water ($c = 5.0$);
Bromine 29.10% (theoretical 29.16%);
"Biuret test" no color reaction.

Similar to the iodide and chloride, different types of crystals are formed from different concentrations (Fig. 7 and 8). It has a bitter taste, insoluble in ether, readily soluble in alcohol and cold water. Most of its properties and reactions are found as the medium between the iodide and the chloride, as compared in next section.

COMPARATIVE STUDY OF THE QUATERNARY AMMONIUM HALIDES.

1. *Analogous Points.*—These three quaternary ammonium halides resemble one another in their crystalline forms, solubilities, stability against alkalies and inactivity to the "biuret reaction."

2. Their molecular rotations are found to be equal, as estimated from their specific rotations which were determined in the same solvent with the same conditions, as shown in Table I.

TABLE I.—ROTATORY ANALOGY BETWEEN THE THREE QUATERNARY HALIDES OF EPHEDRINE.

Methyl-Ephedrine-Methyl.	Chloride.	Bromide.	Iodide.
Molecular formula	$C_{20}H_{20}ON{\cdot}Cl$	$C_{20}H_{20}ON{\cdot}Br$	$C_{12}H_{20}O{\cdot}N$
Molecular weight	229.63	274.08	321.1
Sp. R. $(\alpha)_D^{22}$ in MeOH ($c = 5$)	−45.2°	−37.9°	−32.3°
in H_2O ($c = 5$)	−31.2°	−25.8°	−22.3°
Mol. R. $(\alpha_M)_D^{22}$ in MeOH ($c = 5$)	−103.8°	−103.9°	−103.7°
in H_2O ($c = 5$)	−71.64°	−71.71°	−71.61°

From the above table, it is seen that the "atomic rotations" of these three halogens in their respective analogous halides are the same.

3. Upon Treatment with Potassium Dichromate.—The neutral aqueous solutions of these three halides readily produce a precipitate of methyl-ephedrine-methyl-dichromate, $(C_{10}H_{14}ONMeMe)_2Cr_2O_2$. The precipitate crystallized in characteristic yellow needles, difficultly soluble in alcohol and dilute acetic acid, but readily soluble in dilute alkalies and hot water. After filtering, washing with alcohol and ether, and re-crystallizing from different concentrations of aqueous solution, the yellow needles are reformed without noticeable variation in form (Fig. 9).

Methyl-ephedrine-methyl-dichromate has no sharp melting point—165–185° with decomposition. On standing intramolecular oxidation takes place, darkening the color and giving an odor somewhat like burning ephedrine.

Potassium chromate does not produce any precipitate in neutral solution, but it does so when the solutions are acidified with acetic acid. It is assumed that these reactions are as follows:

$$2C_{10}H_{14}ONMeMe\cdot X \xrightarrow{K_2Cr_2O_7} (C_{10}H_{14}ONMeMe)_2Cr_2O_7 \text{ (ppt.)}$$

$$2C_{10}H_{14}ONMeMe\cdot X \xrightarrow{2K_2CrO_4} \underset{\text{Hac}\uparrow\downarrow\text{KOH}}{(C_{10}H_{14}ONMeMe)_2CrO_4} \text{ (sol.)}$$

4. Their dilute solutions, about one per cent, are equally sensitive to potassio-mercuric iodide, forming a precipitate of $(C_{10}H_{14}ONMeMe)_2HgI_4$. These are yellowish white and remain undissolved on the addition of dilute acetic or hydrochloric acid. This test could be more satisfactorily used for distinguishing these three halides from other ephedrine preparations than for distinguishing between methyl-ephedrine and ephedrine (8) as suggested by Smith.

5. They are equally responsive to the following reagents:

Gold chloride, platinum chloride, mercuric chloride, phospho-molybdic acid, bismuth nitrate, potassium bismuth iodide, picric acid, Wagner's reagent (iodine in potassium iodide solution), etc.

Some of these reactions will be discussed in a later paper as they can be applied qualitatively to ephedrine and all of the derivatives which we have prepared (4), (5). Some of them, used in distinguishing between these three halides, are described as follows.

II. SPECIFIC.—1. These three halides are responsive to the ordinary tests for alkali halides and can be distinguished one from another by such reagents as silver nitrate, chlorine water, lead nitrate, mercuric chloride, potassium permanganate, etc.

2. The chloride and bromide form leaflet crystals with auric chloride and platinic chloride, respectively (Fig. 10, 11, 13 and 14), which are generally soluble in water and alcohol, insoluble in ether, and somewhat slightly soluble in chloroform. The chloride gives light green-color-like crystals and the bromide gives orange red-color-like crystals and the iodide is dark violet. These colors are similar to the colors of the halogens themselves.

3. The iodide forms clustered leaflets with auric chloride (Fig. 12) and fine clusters with platinic chloride (Fig. 13). The former is soluble in chloroform and

ether as well as in water and alcohol. The latter is soluble in alcohol, insoluble in ether, and slightly soluble in water and chloroform. Both are colored just like iodine, and decolored by sodium thiosulphate, but do not produce any blue coloration with starch solution.

4. With neutral or acidified bismuth nitrate, the chloride forms a white precipitate, the bromide a yellowish precipitate, and the iodide a bright red precipitate. These precipitates are assumed to be the double salts of bismuth of the general formula, $C_{10}H_{14}ONMeMeBiR_4$.

III. NOTES UPON METHYL-EPHEDRINE-METHYL-IODIDE REACTIONS.

1. The Auric Chloride Test.—It readily reacts with $HAuCl_4$ in two steps, forming two kinds of crystals shown as follows:

$$4HAuCl_4 + 4C_{10}H_{14}ONMeMe{\cdot}I \longrightarrow HCl + (C_{10}H_{14}ONMeMe)AuI_4 \text{ (ppt., Fig. 12)}$$
$$\text{(filtrate)} \qquad \text{(violet)}$$
$$3HAuCl_4 + 3C_{10}H_{14}ONMeMe{\cdot}Cl \longrightarrow 3HCl + 3(C_{10}H_{14}ONMeMe)AuCl_4 \text{ (ppt., Fig. 10)}$$
$$\text{(green)}$$

The former is much less soluble than the latter. Examined under the microscope these two forms can be clearly distinguished.

2. The Platinic Chloride Test.—In the same manner it reacts with H_2PtCl_6 in two steps and forms two kind of crystals, thus,

$$3H_2PtCl_6 + 6C_{10}H_{14}ONMeMe{\cdot}I \longrightarrow 2HCl + (C_{10}H_{14}ONMeMe)_2PtI_6$$
$$\text{(violet)}$$
$$\text{(filtrate)}$$
$$2H_2PtCl_6 + 4C_{10}H_{14}ONMeMe{\cdot}Cl \longrightarrow 4HCl + 2(C_{10}H_{14}ONMeMe)_2PtCl_6 \text{ (ppt., Fig. 13)}$$
$$\text{(green)}$$

The precipitate of methyl-ephedrine-methyl-platinic-iodide is almost insoluble in chloroform and ether. It is, therefore, easily distinguishable from methyl-ephedrine-methyl-auric-iodide and iodine.

3. A Test for Bismuth.—It reacts with bismuth salts in neutral or acidified solutions, forming a bright red precipitate, $C_{10}H_{14}ONMeMeBiI_4$, which is insoluble in water and dilute acids. This test is sensitive enough for detecting bismuth in an aqueous solution which contains 0.001% (1 in 100,000) bismuth nitrate, slightly acidified with nitric acid, and so promises to be of use in toxicological studies upon bismuth.

It has been noticed on the one hand that methyl-ephedrine-methyl-iodide in concentration of 1 to 5 per cent is especially sensitive to some reagents. On the other hand the former may be used as a reagent to test the latter. Hence this compound may prove of service in various other tests.

4. Reaction with Mercuric Chloride.—On the addition of $HgCl_2$ solution, dropping slowly to excess, at first a white precipitate of $(C_{10}H_{14}ONMeMe)_2HgI_4$ is formed, which is insoluble in water and dilute acids; then a red precipitate of HgI_2, difficultly soluble in dilute acid but readily soluble in excess of $HgCl_2$; and then a white gelatinous precipitate readily soluble in excess of $HgCl_2$ or on addition of dilute acids. This test is somewhat different from the reactions of potassium iodide with mercuric chloride.

5. Test with Phospho-molybdic Acid.—A greenish yellow precipitate is formed. On standing it becomes blue within a period of 10 minutes to 2 hours. The re-

spective precipitates of ephedrine (1) and other ephedrine derivatives (to be reported later) formed in the same manner require 5 to 20 days to show the same color change.

6. Tests for the Iodide Only.—Ferric chloride produces a reddish brown precipitate and copper sulphate a yellowish brown one. On the addition of sodium thiosulphate, the former dissolves entirely to form a clear solution but the latter only partially. Ephedrine and other ephedrine derivatives do not show these reactions.

SUMMARY.

1. Methyl-ephedrine-methyl-iodide was isolated in pure form from the methylation mixture used for preparing methyl-ephedrine-iodide.

2. Pure methyl-ephedrine-methyl-chloride and methyl-ephedrine-methyl-bromide were prepared from the iodide by a modified transformation method.

3. These three quaternary ammonium halides were found to produce no "biuret coloration." Their "molecular rotations" were equal, showing that the "atomic rotations" of these three halogens in their respective quaternary ammonium halides are the same.

4. Potassium di-chromate, auric chloride, platinic chloride, etc., are found to be good reagents for testing these three halides.

5. Methyl-ephedrine-methyl-iodide forms methyl-ephedrine-methyl-auric-iodide, $(C_{10}H_{14}ONMeMe)AuI_4$, which possesses most of the general physical properties of iodine except the coloration with starch.

6. Bismuth can be detected, by methyl-ephedrine-methyl-iodide, in an aqueous solution slightly acidified with nitric acid containing 0.001% bismuth nitrate.

7. These three halides crystallize into variable forms and with certain reagents produce characteristic crystals (Fig. 1 to 14).

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ON THE ASSOCIATE ACTION OF QUININE AND OF ETIOLOGIC URETHANE IN REGARD TO THEIR USE IN THE THERAPY OF MALARIA.

BY PROF. ANGELO SPANIO.

Etiologic urethane is very little used in therapy, and would have been completely forgotten if it had not been for Gaglio who suggested its particular use in dissolving quinine chloride for intramuscular injections for the cure of malaria. Although this solution (Gaglio Solution) is very widely used, nevertheless a few cases of sudden death through its use, influenced Prof. Spanio to make a pharmacological study of urethane. He arrived at the following conclusions:

1. The minimum lethal dose of etiologic urethane, by intravenous injection, is two Gm. per each Kg. of body weight of the animal.

2. Death is caused principally through the paralysis of the respiratory center.

3. Death is due to the direct action of the drug on the nerve center.—*Archivio di Farmacologia Sperimentale e Scienze Affini, Roma*, November 1931.

THE RELATIONSHIP OF POTENCY AND HYDROGEN-ION CONCENTRATION IN TINCTURE OF DIGITALIS.*

A Preliminary Study.

BY JOHN C. KRANTZ, JR., AND JAMES C. MUNCH.

INTRODUCTION.

The relationship between hydrogen-ion concentration and the potency and stability of extractive preparations has warranted the attention of the physical chemist and pharmacologist over the period of the last decade. Accordingly, attention has been drawn to Digitalis preparations. Tainter (1) showed that the physiological activity of freshly prepared infusion of digitalis is independent of its hydrogen-ion concentration. He observed also that the infusions tended to become acid upon standing.

This investigator determined the acidity of the tincture to be the equivalent of an $N/10{,}000$ hydrochloric acid solution (p_H approximately 4.6). Takahashi (2), contrary to the results of Tainter, showed that the addition of 0.05 per cent to 0.1 per cent of hydrochloric acid to infusion of digitalis increased the stability as shown by the frog method of assay.

Smith (3), in his studies of the determination of hydrogen-ion concentration in alcoholic solution, found tinctures of digitalis to range in hydrogen-ion concentration from p_H 5.2 to 5.77. Joachimaglu and Bose (4) showed the stability of tincture of digitalis to be increased by the addition of tartaric acid. These investigators found the p_H of tincture of digitalis to be 5.88, with 0.1 per cent tartaric acid 5.44, and with 0.2 per cent tartaric acid 5.13. In a previous communication to This Journal one of us (J. K. (5)) studied the acid-base equilibrium of tincture of digitalis and its buffer capacity. Further the acidity of the infusion (6) and the effect of aging on this preparation was investigated.

Very recently in a survey of pharmaceutical preparations in Virginia, Haag and Jarrett (7) observed that no constant relationship existed between the hydrogen-ion concentration and the heart-tonic value of the tincture. The tinctures studied had a hydrogen-ion concentration generally below p_H 4.50.

With the findings of these investigators in mind the authors began a study of the hydrogen-ion concentration and the potency of the tincture.

EXPERIMENTAL.

The tendency in recent years in the extraction of digitalis for the preparation of the tincture has been to increase the alcoholic content of the menstruum. Thus the German Pharmacopœia has increased the alcoholic strength of the menstruum from fifty per cent to a menstruum of absolute alcohol. This action is supported by the work of Joachimaglu (8), who observed that the total glucosides are extracted from the drug by absolute alcohol.

In the spring of 1930 five samples of digitalis leaves were extracted with 80 per cent alcohol and by the German pharmacopœial method. The hydrogen-ion concentration of these preparations was determined electrometrically using a Wilson (9) type hydrogen electrode.

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* Scientific Section, A. Ph. A., Miami meeting, 1931.

The results are recorded in Table I.

TABLE I.—ASSAY OF TINCTURE OF DIGITALIS.

Original p_H—first figures p_H after 16 months—second figures	Sample No. J.	C.	H.	W.	A.
80% Alcohol	5.96	6.02	5.90	6.20	5.75
	5.10	5.43	5.25	5.65	5.73
Absolute alcohol	4.48	4.00	4.30	4.01	3.40
	4.10	4.00	4.25	4.00	3.00
Repercolate, 80% alcohol	5.92	6.10	6.07	6.35	..
	5.20	5.40	5.30	5.90	..
Ash—(Milligrams per Liter).					
80% Alcohol	1890	2050	1320	1360	1960
Absolute alcohol	60	100	20	160	110
Repercolate, 80% alcohol	1450	1130	920	720	..
One-Hour Frog Assay—(Per cent U. S. P. X Standard).					
80% Alcohol	136	100	75	136	75
Absolute alcohol	86	48	60	55	26
Repercolate, 80% alcohol	48	60	48	100	..

Sample J was percolated with 50 per cent alcohol. The p_H of this tincture was 5.96 identical with the value obtained when 80 per cent alcohol was employed. It is apparent from these data that the water removes from the leaves constituents which tend to reduce the hydrogen-ion concentration of the tincture.

Portions of the various tinctures were evaporated to dryness and the residue ashed at a dull red heat. Table I records the data obtained.

The ash content of the tinctures varied tremendously, depending upon the nature of the menstruum employed. With absolute alcohol the ash is negligible—much of the ash not found in the tinctures prepared with absolute alcohol appears in the re-extractions made of the marc with 80 per cent alcohol.

These tinctures were assayed biologically using the One-Hour Frog Method, and the Hatcher Cat Method was employed also upon Sample A.

After a year and four months, the tinctures which were stored in diffused light in partially filled bottles were examined again. The hydrogen-ion concentration was determined—in certain instances the quinhydrone electrode was employed as some of the tinctures had developed the capacity of rapidly poisoning the hydrogen electrode. The results are shown in Table I.

DISCUSSION OF RESULTS.

Hydrogen-Ion Concentration.—The results of these investigations on five samples of digitalis indicate that the tincture prepared with absolute alcohol has a greater hydrogen-ion concentration than that prepared with 80 per cent alcohol. This difference is very marked ranging in the freshly prepared tincture from approximately 1.5 p_H units to 2.3 p_H units. The marc obtained after percolation with absolute alcohol yielded a tincture with 80 per cent alcohol that was practically identical, as far as hydrogen-ion concentration is concerned, with a tincture prepared from the drug with 80 per cent alcohol. This phenomenon is possibly associated with the inorganic salts present in the leaf. The analysis of the ash showed it to consist essentially of potassium carbonate. The acids of the leaf described by Fourton (10) are possibly combined partially with potassium and

extracted by the 80 per cent alcohol yielding a system with a reasonably high buffer capacity (5, 11) having present a strong base combined with a weak acid and also some of the slightly dissociated acid. When, however, absolute alcohol is employed the alkali salts are not dissolved as evinced by the low ash content and the higher hydrogen-ion concentration. This view is substantiated further by the fact that the marc obtained after exhaustion with absolute alcohol yielded to 80 per cent alcohol a tincture of essentially the same hydrogen-ion concentration as the tincture prepared directly from the drug with 80 per cent alcohol. In a subsequent study, the authors anticipate the investigation of the buffer capacity of the tincture prepared with absolute alcohol, which will likely shed more light upon this phenomenon.

Upon standing for more than a year the hydrogen-ion concentration of the tincture prepared with 80 per cent alcohol showed slight increases in most instances. The tinctures prepared with absolute alcohol did not change appreciably in hydrogen-ion concentration.

Biological Potency.—The protocol included shows definitely that there is a vast difference in potency between the tinctures prepared with absolute alcohol and those prepared with eighty per cent alcohol. The question naturally arises as to how to account for this difference in activity which in the instance of sample A was as much as 300 per cent. As mentioned previously (8) the glucosides of the leaves were found by Joachimaglu (8) to be soluble in absolute alcohol. Furthermore, the extraction with absolute alcohol would not preclude the extraction of the saponin gitin, which is claimed by Cloetta (12) to potentiate the activity of the digitalis glucosides. It is possible that the difference in cardiac response could be attributed to the difference in hydrogen-ion concentration *per se*. In this respect Nyiri and DuBois (13) showed that the nutrient fluid of the heart can be changed in hydrogen-ion concentration within a range of p_H 5.2 to 7.6 without visible damage to heart action.

The tinctures prepared with absolute alcohol were considerably below this range. In fact Sample A, which exhibited a p_H of 3.40, was only one third the biological potency of the tincture prepared from the same drug with a p_H of 5.75. These investigators claim full digitalis action to occur within their established p_H 5.2 to 7.6 range. In this connection, it is of interest to note, that tinctures of digitalis upon standing decrease in heart tonic value accompanied simultaneously with an increase in hydrogen-ion concentration. Work along this line has been conducted by Joachimaglu (4), Krantz and Carr (14), Rojahn (15), and Macht and Krantz (16, 17, 18).

Our attention was then drawn next to the mineral constituents of the ash to account for the difference in behavior. During the past two decades much important work has been published concerning the influence of electrolytes on cardiac response. It has been shown (Sakai (19), Daley and Clark (20)) that the "pace maker" may be shifted by changes in the Ca^{++}:K^{+} ratio.

An analysis of the ash obtained from tincture A showed 76 per cent potassium carbonate, 0.3 per cent calcium oxide, 3.0 per cent phosphorous pentoxide and about 1 per cent acid-insoluble material. The ash showed a positive reaction for sodium (flame test) and yielded a precipitate with zinc uranyl acetate (21).

The ash contained 9.7 per cent of chlorine, presumably in the form of sodium and potassium chlorides—corresponding to 15.8 per cent of the former. The ash

did not respond to the bismuthate (22) test for manganese and gave no characteristic reaction with *o.p.* dihydroxy-azo-*p*-nitro-benzene (23), indicating the absence of magnesium. The remainder, approximately 5 per cent of ash, was assumed to be sodium carbonate.

The quantity of calcium present in the ash is insignificant. However, the quantity of potassium present may play a rôle. Führer (24) has shown that potassium chloride in concentrations of 500 to 1000 mgm. per liter is sufficient to cause stoppage of the perfused frog heart in diastole. The tinctures prepared with 80 per cent alcohol contained about 15 mgm. of ash in 10 cc. or 1500 mgm. per liter, 1000 mgm. of which may be considered as soluble potassium salts. This factor presents itself in no uncertain terms when one considers that the re-extracted marcs, with 80 per cent alcohol from the absolute alcohol tinctures, were characterized by a potency ranging from 48 to 100 per cent.

Thus this investigation has opened three interesting questions which the authors propose to pursue further. One, is it the increased hydrogen-ion concentration in the tincture prepared with absolute alcohol that is responsible for the diminished potency? Two, is it the presence of potassium ions which augments the potency of the tincture prepared with 80 per cent alcohol? Three, if either of these conditions obtain there arises the question of the suitability of intravenous methods as criteria of the therapeutic efficacy of a product intended to be administered orally.

SUMMARY.

1. A study of the potency and hydrogen-ion concentration of tincture of digitalis has been carried out.

2. The influence of alcoholic concentration upon hydrogen-ion concentration and potency has been studied.

3. Certain theoretical aspects of the problem have been discussed.

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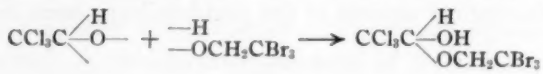
DERIVATIVES OF TRIBROM-ETHANOL: (AVERTIN).

A PRELIMINARY REPORT.

BY S. CHECHIK.

Within the last two or three years, this compound has come into extensive use therapeutically as a local anæsthetic. Its one disadvantage, due to its insolubility in water, is that it must be administered internally in amylene hydrate solution. If this disadvantage can be overcome, the improvement will, no doubt, add materially to the clinical application of this new remedy. Hence, to find a means of introducing avertin into the system in the form of some water-soluble derivative, which at the same time would exert the physiological action of avertin, or which might hydrolyze to liberate avertin itself presents an interesting problem of chemotherapy. However, the writer was not introduced to the study of this compound from this particular point of view.

A systematic study of the readiness with which aliphatic alcohols formed chloral alcoholate addition products with liquid chloral was made in 1930.[1] In connection with the formation of these alcoholates, it seemed of extreme interest to study the possible addition of avertin, which is, structurally, tribrom-ethanol, to chloral, in a manner analogous to that of ethyl alcohol to chloral, namely:



The corresponding bromal compound has also been prepared. Of greater interest, however, are ether-like compounds prepared from tribrom-ethanol. Of these a variety suggested themselves. A preliminary report on some of these is herewith recorded.

EXPERIMENTAL.

Chloral Tribromethylate.—To 1 Gm. of crystalline avertin, a generous quantity of which was supplied by the Winthrop Chemical Research Staff, in 10 cc. of heptane, a mole equivalent of liquid chloral (0.6 Gm.) was added. The reaction mixture was refluxed for half an hour, using an air condenser, allowed to cool, then placed in a refrigerator. Within an hour a crop of glistening white plates was obtained. These were removed by filtration and dried thoroughly on a porous plate. They melted at 68–70°. Recrystallized twice from heptane, the melting point remained constant at 69–70°. This first attempt resulted in a comparatively low yield of 0.92 Gm. or 62 p. c. of the theoretical. Subsequent attempts with 2 and 5 Gm. lots yielded 76 p. c., 83 p. c. and 84 p. c., respectively, of addition compound.

[1] JOUR. A. PH. A., 19 (1930), 320.

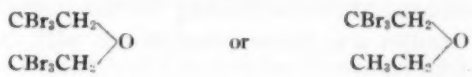
Halogen determinations by the Carius method revealed the presence of 77.9 p. c., 79.7 p. c. and 79.5 p. c., respectively, whereas the theoretical computation calls for 80.2 p. c.

This compound was found to be soluble in water to the extent of 2.5 to 3 p. c. Moreover, when recovered by extraction with ether, its stability in water was demonstrated by the regeneration of the original white crystalline flakes, melting at 70°. Effecting solution in water at 55–60°, however, resulted in its partial hydrolysis yielding a small quantity of chloral hydrate.

Using anhydrous ether as the reaction medium, crystals melting between 67–69° were obtained upon evaporation of the solvent. Recrystallized from heptane, they melted at 68–70°. When carbon tetrachloride was used, crystals with a melting point of 70° resulted. With acetone as reaction medium, crystals were obtained that melted at 68°. Recrystallized from heptane, they melted at 69–70°.

Bromal-Tribrom Ethylate.—Molecular equivalents of avertin (1.5 Gm.) and bromal (1.5 Gm.) suspended and partly dissolved in heptane were refluxed for half an hour. On cooling, crystal sheaths, m. p. 60–62° and 61–62°, were obtained. A bromine determination according to Carius yielded 86.0 p. c. whereas the computed amount of bromine is 85.1 p. c.

Tribrom-Ethanol Ether.—Just as ethyl alcohol, when heated with sulphuric acid yields first ethyl sulphuric acid and subsequently diethyl ether, so tribromethanol may be expected to yield either



according to the conditions under which the experiments are conducted. Substitution of other substances related to alcohol may be expected to yield still different modifications of the ether type, some or all of which may reveal anæsthetic properties. This preliminary report records some of the experiments made in this direction.

Action of Aqueous Sulphuric Acid.—Five grams of avertin crystals were gently heated on the water-bath in 50 cc. of water containing a mole equivalent (2.0 Gm.) of concentrated H_2SO_4 for half an hour. The crystals first went into solution, but after some time a colorless oil settled to the bottom. This oil solidified when the mixture was allowed to cool. When thoroughly dried, it melted at 60–62°, 60–63°, 65–67° and even as high as 67–69°, respectively, in as many experiments. The melting points and bromine contents of these products pointed to a probable mixture of unreacted avertin and some of the ether compound formed. Repeated recrystallizations proved this to be so, as will be shown later on.

The supernatant liquid which was poured off from the solidified oil, on standing yielded a crop of fine, silky needles, m. p. 62–63°, 60–62°, 60–63° as recorded in three experiments.

The yields are herewith tabulated:

	Avertin.	Solidified Oil.	Needles.
(1)	5 Gm.	3.9 Gm.	0.6 Gm.
(2)	5 Gm.	3.1 Gm.	1.2 Gm.
(3)	10 Gm.	7.0 Gm.	2.5 Gm.

Both products gave negative tests for sulphur.

Bromine determinations according to Carius gave the following results:

	Calc. for $CBr_3CH_2OCH_2CBr_3$.	Found.
Solidified oil		92.4 p. c.
		85.7 p. c.
		90.6 p. c.
Needles	87.4 p. c.	86.5 p. c.

The solidified oil, having revealed itself as a mixture as already stated, when recrystallized three times from hot heptane yielded 6.5 Gm. of unreacted avertin and 2.0 Gm. of the ether.

This reaction was then repeated using a two-mole equivalent of concentrated H_2SO_4, in the hope of converting more or all of the avertin into the di-tribrom ethyl ether. This time but a trace of oil solidified, when 5 Gm. of avertin were refluxed with 4 g. H_2SO_4 in 50 cc. water. The supernatant liquor yielded 2.9 Gm. of needles described in the first attempts. The filtrate in turn was diluted with an equal volume of water and shaken out with ether, which procedure yielded 4.0 Gm. of white crystal sheaths, m. p. 61–63° or a total yield of 6.9 Gm. (69.8 p. c.).

Action of Aqueous Nitric Acid.—Five grams of avertin were heated in 50 cc. H_2O with a mole (1.2 Gm.) of concentrated HNO_3 under an air condenser on the water-bath for one hour. The same products were obtained as with H_2SO_4 in aqueous medium. An oil remained insoluble which solidified when the mixture was allowed to cool, while the filtrate on cooling yielded a crop of fine silky needles. The filtrate from the needles was further shaken out with ether.

Solidified Oil.	Needles.	From Mother Liquor.
3.7 Gm.	0.4 Gm.	0.6 Gm.
M. p. 66–70°	M. p. 62–63°	M. p. 73–76°
(Mixture) of avertin and ether	Identical with those described under H_2SO_4	(Mixture) chiefly avertin

The first and last products were bulked and recrystallized twice from hot heptane yielding 0.5 Gm. of the ether m. p. 63° and 3.5 Gm. of avertin, m. p. 79–80°.

Action of Alcoholic Sulphuric Acid.—3 Gm. of avertin in 25 cc. of absolute alcohol were heated under reflux for one hour with an excess of one mole of H_2SO_4 (2.0 Gm.). No crystalline substance formed on cooling, but when the mixture had stood in the ice-box for two days a crop of white plates was filtered off and dried between filter paper. They melted sharply at 60–61° and at 60° when recrystallized from heptane. This compound seemed to possess a more aromatic odor than that of the di-tribromethyl ether.

This substance also gave a negative test for sulphur.

Bromine determination according to Carius, revealed the presence of 77.8 p. c. whereas the formula $CBr_3CH_2OCH_2CH_3$ calls for 77.2 p. c.

The solubility of this compound in water seemed to be greater than that of any of the previous substances described.

To hasten this reaction somewhat, 5 Gm. of avertin and 2 Gm. H_2SO_4 were heated together in heptane, then 6–8 cc. of absolute alcohol were added through the reflux condenser, and the mixture refluxed on the sand-bath at a temperature

of 130–140°. Four grams of the ether, m. p. 60–62°, were obtained from the heptane solution in the following fractions:

(1) Filmy plates
(2) Long perfect needles
(3) Crystal sheaths

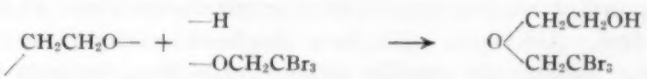
To avoid the use of heptane, which is both expensive and not so extensively available, CCl_4 was next employed. The yields (on basis of 5 Gm. of avertin) from the various solvents are tabulated below:

Medium.	Yield.	% Yield.
Abs. alcohol	3.2 Gm.	59.2 p. c.
	4.0 Gm.	74.0 p. c.
Heptane	4.0 Gm.	74.0 p. c.
CCl_4	4.2 Gm.	77.7 p. c.

Urethane of Avertin.—To effect the reaction

2.5 Gm. of phenyl isocyanate in heptane were added slowly, with vigorous stirring, to a heptane solution of 6 Gm. of avertin. The mixture was refluxed on the water-bath for one hour. On cooling shiny, white plates m. p. 61–63° formed. Recrystallized twice from hot heptane these melted at 65–67° and 66–67°, respectively.

Action of Ethylene Oxide.—The readiness with which H_2O, HBr, HCl, HI and alcohols react with ethylene oxide led to the assumption that this reagent might add on a molecule of brominated alcohol.



Five grams of avertin dissolved in 150 cc. of dry CCl_4 were poured into a three-necked flask, cooled in an ice-salt mixture to 0–10° C. The ethylene oxide gas was passed through a soda lime tower, while its rate of liberation was gaged by bubbling it in turn through a U-tube containing a small amount of water previously saturated with the gas. It was then cooled in a glass coil, surrounded by an ice-salt mixture, to 0–10° and passed into the reaction flask. The gas was passed into the reaction mixture at the rate of 75–80 bubbles per minute for four hours while the mixture was continually agitated. Any unabsorbed ethylene oxide could be observed bubbling through a second U-tube containing water. By means of a thermometer immersed in the reaction liquid, it was possible to keep the temperature between 0° and 8°, a condition necessary for the maximum absorption of the ethylene oxide.

When the reaction was complete, CCl_4 was distilled off, leaving 20–25 cc. of liquid material. This was allowed to cool and concentrated in an open vessel. A granular crystalline deposit (5.3 Gm.) was obtained, which when dried on a porcelain plate melted at 63–65° C. This, however, was raised to a constant melting point of 70–71° by repeated recrystallization from hot heptane, from

which it was obtained in the form of filmy plates. 4.7 Gm. (= 82.4 p. c.) of this compound were isolated.

Bromine determinations according to Carius yielded 72.8 p. c. and 71.6 p. c., respectively, in two determinations, whereas the formula $CBr_3CH_2OCH_2CH_2OH$ calls for 73.4 p. c.

CHEMICAL LABORATORY OF THE
WISCONSIN PHARMACEUTICAL EXPERIMENT STATION.

SOME CONSTITUENTS OF COMMERCIAL CHERRY GUM.*

BY C. L. BUTLER AND LEONARD H. CRETCHER.

The chemistry of the plant gums (1), as well as of other acid polysaccharides such as pectins, mucilages, hemicelluloses and algins, has not received much detailed attention from research workers until quite recently. This is particularly true of the acidic nuclei of these materials. This problem was attacked long ago by O'Sullivan (2), who believed that gums arabic, gedda and tragacanth contained as acidic nucleus a stable organic acid of the formula $C_{23}H_{38}O_{22}$. Robinson (3) later obtained an acid of similar composition from the gum of *Cochlospermum Gossypium*.

Recent researches in this field have not confirmed the C_{23} acids of O'Sullivan and Robinson as the nucleus of plant gums, since gum arabic (1), (4), mesquite gum (5) and flaxseed mucilage (6) were shown to contain aldobionic acids ($C_{12}H_{20}O_{12}$), which are composed of one uronic acid and one sugar group as stable nuclei. The soluble fraction of gum tragacanth (7) appears to contain a C_{23} acid. This substance, however, differs from the monobasic C_{23} acid of O'Sullivan in that it is composed of one pentose and three uronic acid residues, all three carboxyl groups being free. Aldobionic acids have also been isolated from the hydrolysis products of the serologically specific carbohydrates from bacteria (8) and from hemicellulose of cottonseed hull bran (9).

In the course of our studies on the chemistry of the plant gums, we obtained a number of samples of cherry gum. A report on the composition of a sample collected from wild cherry trees in Indiana will be published elsewhere. In this paper will be found a description of some experiments with material purchased on the open market.

The acidity of cherry gum has been stated by Ehrlich (10) to be due to glucuronic acid. However, no experimental data are given in his report. A few references to investigations showing the presence of *l*-arabinose and *d*-galactose are to be found in the older literature (11). Van der Haar (12) reported the absence of methylpentoses and confirmed the presence of arabinose, galactose and the "glucuronic acid group" without demonstrating which uronic acid was present.

The sample used in the experiments to be described contained 12.8% moisture and 2.8% ash, the constituents of which are shown in Table I.

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TABLE I.—CONSTITUENTS OF COMMERCIAL CHERRY GUM ASH.

SiO_2	0.95%
Fe_2O_3 and Al_2O_3	3.61
CaO	86.17
MgO	9.22
Total	99.95%

It will be noticed that the ash differs from that of gum arabic in that the latter contains a considerable amount (about 20%) of alkali metals. Analyses for the sugar constituents ordinarily found in this type of substance were made on the ash-free gum by the usual methods (13). The results are shown in Table II.

TABLE II.—CONSTITUENTS OF COMMERCIAL CHERRY GUM ACID.

Uronic acid	30.1%
Pentose (furfural phloroglucid method)	13.3
Arabinose (diphenylhydrazone method)	11.8
Methyl pentose	4.9
Galactose	40.5
Methoxyl	3.0

Since many pectic substances have been shown to contain methoxyl groups, the gum was analyzed for this constituent by the Zeisel method. It was found to contain 3.0%. For purposes of comparison, other samples of cherry gum were gathered directly from the trees and analyzed for methoxyl content. As shown in the Experimental Part of this paper, all gave negative results. Peach and plum gums, however, both gave positive tests.

It is claimed (14) that European cherry gum is frequently a mixture of fruit gums, the term cherry gum being applied to any mixture of cherry, plum, peach and apricot gums. In view of this, and as a result of our experience with many samples of cherry gum, we are inclined to the idea that no authentic cherry gum of American origin contains methoxyl. The fact that the sample of gum collected from wild cherry trees in Indiana gave quite different results when submitted to hydrolysis, is further confirmation of the idea that the sample herein described is not botanically authentic. Little or no reliance can be placed on the botanical authenticity of plant gums bought on the open market. Obviously this is a very important factor in chemical studies of this kind.

This cherry gum, like the better known gum tragacanth, is not completely dissolved by water. When digested for thirty-six hours with five times its weight of water, about 12% remained undissolved. Preliminary experiments were made on the water-soluble fraction of the gum, but later work indicated that identical hydrolysis products were obtained using the whole gum as starting material.

It has been reported (15) that partial hydrolysis of gum arabic with 1–1 cold hydrochloric acid yields a gum acid which precipitates with anti-pneumococcus sera. We desired to compare the properties of similarly treated cherry gum with those of gum arabic in this respect. We are indebted to Dr. Robert Koch, Institute of Pathology, The Western Pennsylvania Hospital, Pittsburgh, Pa., for testing samples of this partially hydrolyzed material and the water-soluble fraction of cherry gum against anti-pneumococcus sera, Types I, II and III. In dilutions

from 1:50,000 to 1:100 the solutions caused no cloudiness when added to the sera. Control tubes with pneumococcus cultures gave positive precipitation tests.

The reaction of (1–1) hydrochloric acid on this cherry gum led to the formation of an alcohol-insoluble intermediate gum acid and an alcohol-soluble sugar fraction. The quantities of alcohol-soluble and insoluble furfural phloroglucid (corrected for uronic acid) obtained from this gum acid, on analysis, were so small that the presence of pentose or methyl pentose in the material was quite doubtful. The substance had a neutralization equivalent of 672. It consisted of approximately 66% free acid and 34% lactone. The calculated neutralization equivalent for such an acid-lactone mixture composed of three units of hexose and one of hexuronic acid ($C_{24}H_{40}O_{22}$) is 674, assuming that three molecules of water were lost in its formation.

An aldobionic acid was isolated after hydrolysis in boiling half-normal sulfuric acid, both from the intermediate gum acid and from the water-soluble fraction of the original gum. The complete identification of the aldobionic acid fraction was not accomplished. That the sugar half of the molecule is *d*-galactose was shown by isolation of this sugar after hydrolysis. The absence of glucuronic acid was shown by repeated failures to obtain acid potassium saccharate from oxidation products using either nitric acid or bromine-hydrobromic acid mixture. The fact that nitric acid oxidations invariably gave quantities of mucic acid corresponding roughly to half the aldobionic acid molecule instead of to the whole of it indicated the absence of galacturonic acid. This was confirmed by hydrolyzing the aldobionic acid and oxidizing the acidic fraction of the hydrolysis product. Neither mucic nor saccharic acid could be isolated.

A small amount of mucic acid was obtained by submitting the aldobionic acid to simultaneous hydrolysis and oxidation with bromine-hydrobromic acid mixture. That this could have been an oxidation product of the galactose half of the molecule was shown by the isolation of mucic acid when galactose was submitted to the same experimental conditions. The bromine-hydrobromic acid test, commonly used by workers in this field, therefore seems to be of uncertain value as a test for uronic acids.

Analysis by the Zeisel method showed that the aldobionic acid contained 5.7% methoxyl. The theoretical methoxyl content for an aldobionic acid containing one CH_3O group is 8.4. The substance therefore was a mixture of methylated and unmethylated material. Further purification was attempted by crystallization from acetic acid, and by fractional precipitation of the calcium salt. These experiments were not successful as in no case could an acid be isolated which had a methoxyl content even approaching the proper value for methylated aldobionic acid, nor could the unmethylated acid be obtained in pure condition. Since no difficulty was experienced in isolating galactose from the acid, it is quite probable that the methoxyl group is attached to the uronic acid half of the molecule (5). This would account for the failure to identify the uronic acid by the usual methods.

As stated above, the only sugars reported to date in cherry gum are *d*-galactose and *l*-arabinose. In this work, the presence of these sugars has been confirmed.[1] The small amount of methyl pentose present was not identified.

[1] The constituents of a sample of cherry gum collected directly from wild cherry trees in Indiana were found to be: *d*-mannose, *d*-galactose, *l*-arabinose, *d*-xylose, and *d*-glucuronic acid.

EXPERIMENTAL PART.

Separation of Cherry Gum into Soluble and Insoluble Fractions.—Forty Gm. of coarsely ground gum containing 12.8% water and 2.8% ash were placed in a flask with 200 cc. of boiling water and thoroughly mixed. The mixture was kept on a water-bath for one-half hour and then was allowed to stand for 36 hours at room temperature. It was centrifuged and the clear heavy liquid was decanted off. The insoluble part was agitated with 100 cc. of cold water and the mixture again centrifuged. The wash liquor was added to the supernatant liquor first obtained. The insoluble residue was dried over night at 80°. It weighed 4.5 Gm.

To the combined supernatant liquors containing the soluble fraction of the gum, was added two volumes of 95% alcohol. The mixture was allowed to settle over night, and the milky liquor above the precipitated gum was then decanted. The curdy precipitate was washed with 95% alcohol, and dried at 80°. It weighed 24 Gm. An additional 5.5 Gm. of soluble gum was obtained from the mother liquor of the first precipitate by concentrating *in vacuo* to a syrup and reprecipitating with alcohol, making the total weight of soluble gum 29.5 Gm. $[\alpha]_D + 5.4$. The substance did not reduce Fehling's solution.

Hydrolysis with Cold 18% Hydrochloric Acid.—Two hundred Gm. of finely powdered whole gum was added slowly, with stirring, to 500 cc. of 18% HCl. After standing for 24 hours at room temperature, practically all the material was in solution. The solution was strained through cloth into a 3-liter flask, which was then filled with 95% alcohol to precipitate the partially hydrolysed gum acid. After settling, the supernatant liquor was decanted, the sticky precipitate was macerated with 95% alcohol and washed with three successive portions of the same solvent. The substance dissolved in water to a cloudy solution, which was clarified by adding a little decolorizing carbon and shaking and then adding acetone until a small amount of the gum acid separated. The mixture was centrifuged and the clear liquor decanted. The thick gummy residue was mixed with water and treated with acetone as before, and again centrifuged. The process was repeated until only a small amount of gummy material containing all the carbon was left. The clear liquors were combined and precipitated with acetone. The product was dried *in vacuo* at 50°. The yield was 65 Gm. $[\alpha]_D + 32°$.

A product having the same rotation was prepared by this method from the water-soluble part of the gum.

This material did not precipitate with pneumonia anti-sera.

Analyses.—Substance, 0.3106 Gm. required 3.06 cc. *N*/10 NaOH at room temperature (phenolphthalein) and 4.62 cc. in hot solution. Calculated for $C_{24}H_{40}O_{22}$: equivalent weight (67% free acid, 33% lactone), 674. Found: equivalent weight, 672. Only traces of pentose and methylpentose were present.

Hydrolysis of the Intermediate Gum Fraction with Half-Normal Sulphuric Acid.—Fifty Gm. of the partially hydrolyzed cherry gum acid was dissolved in one liter of 0.5 *N* sulphuric acid and boiled under a reflux condenser for 4.5 hours. The rotation after hydrolysis was $\alpha = +7.25$ in a 2-dcm. tube. The sulphuric acid was removed with barium hydroxide and the solution of sugar and sugar acid was concentrated to 250 cc. It was then heated in the water-bath with 10 Gm. of calcium carbonate for four hours. After cooling, the mixture was filtered

from the excess calcium carbonate and the calcium salt of the sugar acid was precipitated by the addition of one liter of alcohol. The salt was purified by dissolving in water, reprecipitating and washing with alcohol. Two fractions of salt were obtained; the first and less pure was colored and weighed 5 Gm. The main fraction weighed 16 Gm. after drying *in vacuo* at 75° for several hours. $[\alpha]_D$ + 68.8°.

Analyses.—Substance, 0.2000 Gm. 10.4 cc. *N*/10 iodine. Calculated for calcium aldobionate $(C_{12}H_{19}O_{12})_2Ca$: *N*/10 iodine, 10.7 cc.

Substance, 0.3925 Gm.: 0.0680 Gm. $CaSO_4$. Calculated for $(C_{12}H_{19}O_{12})_2Ca$: Ca, 5.3. Found: Ca, 5.2.

The alcoholic mother liquor containing the sugar was concentrated to a thick sirup *in vacuo*. The sirup was dissolved in alcohol and placed in the ice-box to crystallize. Fifteen Gm. of white sugar crystals were obtained. $[\alpha]_D$ = +80.5. $[\alpha]_D$ galactose = +80.5.

The Aldobionic Acid.—A solution of 14 Gm. of calcium aldobionate in 50% alcohol was treated with an alcoholic solution of the calculated amount of oxalic acid to remove the calcium. After filtering, the calcium-free liquid was concentrated to a sirup *in vacuo*. Alcohol was added until no further precipitate was formed and the alcoholic and the alcohol-insoluble material was filtered off. The filtrate was again concentrated and treated with alcohol. A further small quantity of alcohol-insoluble material was precipitated. The filtrate from this precipitate was completely soluble in alcohol. The solvent was evaporated under reduced pressure and the acid was dried to constant weight at 70° *in vacuo*. The yield was 8.8 Gm. $[\alpha]_D$ + 89.8°.

Analyses.—Substance 0.4760 Gm.: AgI, 0.2025 Gm. Calculated for methylated aldobionic acid, $C_{13}H_{22}O_{12}$: CH_3O, 8.4. Found: CH_3O, 5.7.

Substance, 0.1928 Gm.: *N*/10 NaOH, 5.1 cc. at room temperature (phenolphthalein); in hot solution, 5.5 cc. Calculated for $C_{13}H_{22}O_{12}$: equivalent weight, 368. Found: equivalent weight, 350.5.

Substance, 0.1928 g.: 10.4 cc. *N*/10 iodine. Calculated for CHO: *N*/10 iodine, 10.4.

Substance, 0.5471 Gm.: CO_2, 0.0662 Gm. (Lefevre method). Calculated for $C_{13}H_{22}O_{12}$: uronic acid, 52.4. Found: uronic acid, 53.2.

Substance, 0.2106 Gm.: CO_2, 0.3167 Gm.; H_2O, 0.1037 Gm. Calculated for $C_{12}H_{22}O_{12}$: C, 42.1; H, 6.0. Found: C, 41.0; H, 5.5.

These figures point strongly to a mixture of methylated and unmethylated aldobionic acid.

An acid having the same properties as those described above was isolated after hydrolysis of whole commercial cherry gum in *N*/2 sulphuric acid.

Hydrolysis of the Aldobionic Acid with 1 N Sulphuric Acid.—Four Gm. of aldobionic acid was dissolved in 25 cc. of 1 *N* sulphuric acid and the solution was boiled gently for 16 hours under a reflux condenser. The sugar fraction was separated by methods described above. It was crystallized from glacial acetic acid and from alcohol. The purified sugar melted at 165°. $[\alpha]_D$ + 80.8. $[\alpha]_D$ galactose + 80.5; melting point 168° (12). On oxidation with nitric acid (sp. gr. 1.15) mucic acid was formed. After thorough washing with water and alcohol, the sample melted at 218.5°. The hexose of the aldobionic acid is therefore galactose. The acidic fraction (isolated as calcium salt) was oxidized with bromine

water after removal of the base with oxalic acid. Neither mucic acid nor acid potassium saccharate could be isolated from the oxidation product.

Hydrolysis of the Aldobionic Acid with Hydrobromic Acid in the Presence of Bromine.—The reaction was carried out as previously described (1, 8). Three Gm. of aldobionic acid was used. The bromine and the greater part of the hydrobromic acid were removed by evaporating repeatedly *in vacuo*. The solution was finally concentrated to 5 cc. and allowed to stand in the ice-box for several days, during which time fine crystals formed in the liquid. These were filtered off and washed. They melted at 210–212°. The crystals were dissolved in *N*/10 NaOH. The solution was acidified with hydrochloric acid and again placed in the ice-box to crystallize. The recrystallized material melted at 220–221° corr. and did not depress the melting point of a sample of pure mucic acid melting at 220° C. The yield was very low.

No acid potassium saccharate could be isolated from the mother liquor.

Oxidation of the Aldobionic Acid with Nitric Acid.—A sample of 1.5 Gm. aldobionic acid was oxidized in the usual way with 15 cc. of nitric acid, sp. gr. 1.15. The yield of mucic acid was 0.44 Gm., corresponding to 0.60 Gm. galactose, or 40.0%. It was impossible to demonstrate the presence of saccharic acid in the filtrate from the mucic acid.

Numerous larger scale oxidation experiments using up to 60 Gm. of aldobionic acid were carried out. The yield of mucic acid, in all cases, corresponded to less than half the aldobionic acid molecule. No saccharic acid was found in the filtrate from the mucic acid.

Oxidation of Galactose with Bromine-Hydrobromic Acid Mixture.—Four Gm. of galactose was treated as previously described with this reagent. The yield of mucic acid was 0.13 Gm.

Analysis of Cherry Gum Acid.—A sample was prepared from the water-soluble fraction of the gum by the method of Neubauer (16) and analyzed according to the usual methods (12).

Analyses.—Subs., 0.3434 Gm.: CO_2 (Lefevre method), 0.0235 Gm. Found: uronic acid, 30.1. Subs. 1.000 Gm.: *N*/10 NaOH (phenolphthalein) in hot solution, 15.65 cc. Found: equivalent weight, 639. Subs. 0.2960 Gm.: alcohol-insoluble furfural phloroglucide, 0.0600 Gm. correction for uronic acid, 0.0297 Gm. leaving 0.0303 Gm. insoluble phloroglucide due to pentose; alcohol soluble phloroglucide 0.0054 Gm. Found: pentose (calc'd. as arabinose), 13.3; methyl pentose (calc'd. as rhamnose hydrate), 4.9 (doubtful). Substance, 1.000 Gm.: arabinose diphenylhydrazone, 0.2485 Gm. Found, arabinose 11.8. Substance, 1.000 Gm.: mucic acid 0.288 Gm. Found: galactose, 40.5. Substance, 0.4870 Gm.: AgI, 0.1215 Gm. Found: CH_3O, 3.3.

The Methoxyl Content of Fruit Tree Gums.—0.3000 Gm. soluble cherry gum (Eimer and Amend) gave 0.0670 Gm. AgI. Found: CH_3O, 3.0%.

0.3000 Gm. cherry gum, wild (Indiana), gave no AgI. Found: CH_3O, 0.0%.

0.3000 Gm. cherry gum, domestic (Ohio), gave no AgI. Found: CH_3O, 0.0%.

0.5000 Gm. cherry gum, domestic, dark red sweet (Penna.), gave no AgI. Found: CH_3O, 0.0%.

0.5000 Gm. cherry gum, domestic, red sour (Penna.), gave no AgI. Found: CH_3O, 0.0%.

0.5000 Gm. peach gum, domestic, gave 0.0165 Gm. AgI. Found: CH_3O, 0.4%.

0.5000 Gm. plum gum, domestic, gave 0.0390 Gm. AgI. Found CH_3O, 1.0%.

SUMMARY.

Hydrolytic studies on a sample of cherry gum purchased on the open market were carried out. In common with all plant gums studied to date this gum was found to contain uronic acids. The aldobionic acid fraction was shown to contain galactose and unidentified methylated uronic acids.

Apparently authentic American cherry gum does not contain methoxyl.

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PITTSBURGH, PA.

PRELIMINARY INVESTIGATION OF CERTAIN PHYSICAL AND CHEMICAL PROPERTIES OF THE VOLATILE OILS FROM AUTHENTIC PLANT PRODUCTS.

BY JOSEPH F. CLEVENGER.*

This investigation was undertaken to obtain information regarding the volatile oils of plant products official in the U. S. P. and N. F. as well as of other plant products which may be used as drugs. The work has been limited chiefly to plant products regularly imported that contain appreciable quantities of volatile oil. The volatile oils present in these plant products are usually the important constituents. It is believed the following information will be valuable in suggesting volatile oil standards.

Where the amount of moisture present is reported, the determination was made by the xylol method. The distillation of the volatile oils was carried to complete exhaustion by the use of the Clevenger apparatus,[1] which may now be obtained by Emil Greiner Co., New York, N. Y.

The physical constants were determined at 20° C. The chemical characteristics were determined by methods outlined in U. S. P. X. Unless otherwise stated the products examined represented imports.

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[1] JOUR. A. PH. A., 17 (1928), 345.

Oleum Anisi.—Oils distilled from samples taken from 25 shipments of anise seed and 24 shipments of star anise fruits gave the following data:

Anise Seed.

	Limits.	Usual.	U. S. P. X.
Yield	1.6% to 3.0%	2.2%	
Specific gravity	0.982 to 1.000	Under 0.996	0.978 to 0.988
Optical rotation	−0.4° to +1.0°	0.0°	+1° to −2°
Refractive index	1.550 to 1.557	Approx. 1.554	1.554 to 1.560
Congealing temperature	+12° to +17.5° C.	+15.0 to +16.0° C.	Not below +15° C.

Star Anise Fruits.

Yield	7.8% to 13.0%	9% to 10%
Specific gravity	0.977 to 1.000	Approx. 0.991
Optical rotation	−1.0° to +0.6°	0.0°
Refractive index	1.550 to 1.557	Over 1.552
Congealing temperature	+7.5° to +17.5° C.	+14° to +16° C.

Oleum Cari.—Oils distilled from samples taken from 17 shipments of caraway seed gave the following data:

	Limits.	Usual.	U. S. P. X.
Moisture (in seed)	6.0% to 12.5%	6.0%	
Yield	3.3% to 5.0%	Approx. 4.0%	
Specific gravity	0 927 to 0.942	Approx. 0.930	0.900 to 0.910
Optical rotation	+66° to +72°	Below +68°	+70° to +80°
Refractive index	1.487 to 1.493	Approx. 1.490	1.484 to 1.488
Carvone	62% to 78%	Approx. 75%	50%

Oleum Caryophylli.—Oils distilled from samples taken from four lots of cloves gave the following data:

Moisture (in buds)	5.0% to 7.5%	
Yield	15.0% to 16.6%	
Specific gravity	1.036 to 1.059	1.038 to 1.060
Optical rotation	0.0° to −0.3°	Not exceed −1°10′
Refractive index	1.530 to 1.534	1.530 to 1.535
Eugenol	96% to 98%	82%

Further work is contemplated.

Oleum Cinnamonii.—Oils distilled from samples taken from 21 shipments of Saigon Cassia, 18 shipments of China Cassia, 30 shipments East India and 8 shipments of Ceylon Cinnamon gave the following data:

Saigon Cassia.

Moisture (in bark)	8.5% to 20%	13.0%	
Yield	2.0% to 3.6%	2.5%	
Specific gravity	1.035 to 1.056	1.040 to 1.046	1.045 to 1.063
Optical rotation	−0.7° to 0.0°	0.0°	+1° to −1.0°
Refractive index	1.592 to 1.611	1.607 to 1.610	1.602 to 1.606
Cinamic aldehyde	90% to 96%	93% to 95%	80%
Nonaldehyde portion			
Acid number	4.4 to 13.9	5 to 8	
Ester number	50 to 183	80 to 163	

China Cassia.

	Limits.	Usual.	U. S. P. X.
Moisture (in bark)	12.5% to 18.0%	14.0%	
Yield	0.6% to 1.3%	0.7%	
Specific gravity	1.027 to 1.044	1.030 to 1.035	
Optical rotation	−1.7° to 0.0°	Below −0.7°	
Refractive index	1.588 to 1.604	1.595 to 1.600	
Cinamic aldehyde	81% to 90%	82% to 86%	
Nonaldehyde portion			
Acid number	10 to 35	21 to 24	
Ester number	42 to 184	84 to 89	

East Indian Cinnamon.

Moisture (in bark)	10.5% to 14.5%	12.0%
Yield	0.8% to 2.3%	1.0%
Specific gravity	1.019 to 1.037	1.027 to 1.032
Optical rotation	−1.4° to −4°	Below −2.8°
Refractive index	1.587 to 1.600	1.590 to 1.595
Cinamic aldehyde	80% to 90%	Approx. 83%
Nonaldehyde portion		
Acid number	4.6 to 13.2	6 to 8
Ester number	70 to 131	90 to 100

Ceylon Cinnamon.

Moisture (in bark)	9.5% to 17.5%	12.0%
Yield	1.0% to −1.5%	1.2%
Optical rotation	−2.4° to 0.0°	Below −0.6°
Specific gravity	1.017 to 1.034	1.021 to 1.027
Refractive index	1.579 to 1.589	1.584 to 1.587
Cinamic aldehyde	66% to 72%	Approx. 70%
Nonaldehyde portion		
Acid number	3.98 to 10.0	5.6 to 6.4
Ester number	127 to 145	.....

Further work is contemplated in determination of acid and ester numbers on Saigon and China Cinnamons.

Oleum Coriandri.—Oils distilled from samples taken from 10 shipments of Russian and 10 shipments of Morocco coriander fruits gave the following data:

Russian Fruits.

Yield	0.6% to 1.0%	0.8%	0.5%(?) (N. F.)
Specific gravity	0.867 to 0.886	0.870 to 0.880	0.863 to 0.875
Optical rotation	+7° to +11°	Over +9°	+8° to +13°
Refractive index	1.458 to 1.466	Approx. 1.460	1.463 to 1.476

Morocco Fruits.

	Limits.	Usual.	U. S. P. X.
Yield	0.15% to 0.3%	0.2%	
Specific gravity	0.872 to 0.885	Over 0.880	
Optical rotation	+7.0 to +10.4°	Over +8.0°	
Refractive index	1.460 to 1.470	1.461	

Oleum Eucalypti.—Twenty assays of leaves imported and identified as *Eucalyptus globulus* gave the following data:

	Limits.	Usual.	U. S. P. X.
Yield	1.3% to 3.2%	2.0% to 3.0%	
Specific gravity	0.904 to 0.945	0.916 to 0.929	0.905 to 0.925
Optical rotation	−1.0° to +5.8°	0.0° to +4.0°	−10° to +10°
Refractive index	1.462 to 1.470	1.464 to 1.467	1.460 to 1.469
Freezing temperature	Below −22° C.		−15° C.

One assay of leaves from California and identified as *Eucalpytus globulus* gave the following data:

Yield	2.1%
Specific gravity	0.918
Optical rotation	+7.5°
Refractive index	1.470
Freezing temperature	Below −20° C.

Oleum Foeniculi.—Oils distilled from samples taken from 35 shipments of sweet fennel seed and 5 shipments of bitter fennel seed gave the following data:

Sweet Fennel.

	Limits.	Usual.	U. S. P. X.
Yield	1.5% to 5.5%	2.0% to 4.0%	
Specific gravity	0.965 to 0.982	Over 0.970	0.953 to 0.973
Optical rotation	+3.4° to +19.1°	Over 12.0°	+12° to +24°
Refractive index	1.525 to 1.552	Over 1.533	1.528 to 1.538
Congealing temperature	+3° C. to +16° C.	Over +7.0° C.	+3° C.

Bitter Fennel.

Yield	3.2% to 4.8%	
Specific gravity	0.955 to 0.974	Below 0.970
Optical rotation	+12.4° to +15.5°	Below +13.0°
Refractive index	1.504 to 1.510	

Congealing temperature—not obtained apparently below −10° C.

Oleum Lavendulæ.—Oils distilled from samples taken from each of the 9 shipments of Lavender flowers gave the following data:

Yield	1.0% to 3.0%	Approx. 2.0%	
Specific gravity	0.865 to 0.920	Below 0.900	0.875 to 0.888
Optical rotation	+0.6° to −6.9°	Below −5.0°	−3° to −10°
Refractive index	1.461 to 1.465	Below 1.464	1.460 to 1.464

Oleum Myristicæ.—Oils distilled from samples taken from 21 shipments of sound East India nutmeg and 7 shipments of sound West India nutmeg gave the following data:

West India.

Yield	8.5% to 10.0%	9.0%	
Specific gravity	0.862 to 0.868	0.865	0.859 to 0.924
Optical rotation	+40° to +50°	...	+12° to +30°
Refractive index	1.469 to 1.472	...	1.478 to 1.4895

East India.

Moisture (in nutmegs)	6.0% to 9.0%	
Yield	6.5% to 11.0%	Over 8.0%
Specific gravity	0.898 to 0.936	Over 0.900
Optical rotation	+12.0° to +22.0°	Over +18°
Refractive index	1.479 to 1.488	Over 1.481

Shriveled East India nutmeg used chiefly for grinding yielded up to 23 per cent volatile oil having physical constants within the limits given for oil from the sound E. I. nutmeg.

Oleum Rosmarini.—Oils distilled from samples taken from 15 shipments of Rosmary leaves gave the following data:

	Limits.	Usual.	U. S. P. X.
Yield	1.3% to 2.0%	1.7%	
Specific gravity	0.911 to 0.932	0.920	0.894 to 0.912
Optical rotation	+4.8° to +19.3°	Below +10°	0.0° to +15.0°
Refractive index	1.464 to 1.472	Below 1.470	1.466 to 1.472

Oleum Santali.—Oils distilled from samples taken from 30 shipments of Sandalwood gave the following data:

Moisture (in wood)	4.0% to 8.8%	6.0%	
Yield	0.8% to 8.0%	4.0% to 6.0%	N. F. 3.5%
Specific gravity	0.964 to 0.979	Over 0.970	0.965 to 0.980
Optical rotation	−14.0° to −21.8°	Below −16.0°	−15° to −20°
Refractive index	1.502 to 1.505	.....	1.504 to 1.508
Santalol	89% to 96%	Over 93%	Not less than 90%

Oleum Sassafras.—Oils distilled from samples taken from 7 lots of sassafras bark of domestic origin obtained from drug houses gave the following data:

Yield	1.0% to 7.0%	Approx. 4.0%	
Specific gravity	1.060 to 1.080	Over 1.070	1.065 to 1.077
Optical rotation	+1.7° to +4.0°	Over +3°	+3° to +4°
Refractive index	1.522 to 1.532	Over 1.524	1.525 to 1.535

The author is continuing investigations on this class of products, and expects to publish further articles from time to time as material is accumulated. These will include interpretations of the data accumulated and it is believed will warrant recommendations for changes in the standards for judging the quality of such products. Sufficient information is already available, for example, to point to the conclusion that much of the practically worthless cinnamon bark now on the market, can be excluded from the country by the adoption of a suitable quality standard.

A NOTE ON THE EXTENT OF EMULSIFICATION OF ALKALOID-CONTAINING PREPARATIONS WITH IMMISCIBLE SOLVENTS AT DIFFERENT DEGREES OF p_H.

BY W. W. F. ENZ AND C. B. JORDAN.*

Sub-committee No. 6, Proximate Assays, has voted to use the general method of U. S. P. IX in outlining crude drug assay, that is, general directions on proximate assays in Part II with specific directions in each monograph. In Part II of U. S. P. IX under the general directions for alkaloidal assay, the following statement was questioned: "Emulsions are less apt to form in strongly acid or alkaline solutions than in those which are neutral....."

In the assay of alkaloidal-containing crude drugs and their preparations troublesome emulsions frequently occur. In order to determine whether the extent of emulsification would be affected by changes in the p_H as indicated by the above statement appearing in the U. S. P. IX, portions of five official alkaloid-

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containing preparations were treated, respectively, with varying amounts of $N/1$ KOH and $N/1$ HCl. These portions were then shaken with a definite volume of water and an immiscible solvent. The time that emulsification persisted was observed in each case. The preparations studied were Fluidextract of Belladonna Leaves, Fluidextract of Cinchona, Fluidextract of Hydrastis, Tincture of Nux Vomica and Tincture of Stramonium. The immiscible solvents used were chloroform, ether, amyl alcohol, benzene and petroleum benzin.

EXPERIMENTAL.

Two hundred and fifty cc. of each of the five alkaloid-containing preparations were titrated to a p_H of exactly 7.0 using the quinhydrone electrode. Each of these was then divided into five series of 50 cc. each. The series were treated as follows:

p_H AS MEASURED WITH QUINHYDRONE ELECTRODE.

Series.	$N/1$ KOH added.	$N/1$ HCl added.	Fldext. Bellad. Fol.	Fldext. Cinchon.	Fldext. Hydrast.	Tr. Nuc. Vom.	Tr. Stramon.
1	10 cc.		9+	9+	9+	9+	9+
2	5 cc.		8.7	9+	9+	9+	9+
3			7.0	70	7.0	7.0	7.0
4		5 cc.	5.0	1.8	−1.0	1.3	1.7
5		10 cc.	3.8	1.4	−1.0	−1.0	−1.0

The p_H of the resulting solutions was not uniform, probably due to the fact that a hydro-alcoholic solution was titrated which, with the quinhydrone electrode, is hardly dependable especially when different alcoholic concentrations are represented as was the case in these experiments.

Each of the alkaloid-containing preparations was shaken with the five immiscible solvents under each of the five p_H degrees—a total of 125 observations. The time that emulsification persisted in minutes is shown in the following table.

TIME OF EMULSIFICATION IN MINUTES.

	Series.	$CHCl_3$.	Ether.	AmOH.	Benzene.	Benzin.
Fldext. Bellad. Fol.	1	1 3/4	2 3/4	6 3/4	20.0	*30+
	2	1 1/4	3	8 3/4	10 1/2	30.0
	3	2 1/2	3 1/4	6 1/2	1 1/4	4.0
	4	3 1/2	24.0	4.0	13.0	4 1/2
	5	12 1/4	24.0	5 1/2	13.0	1 1/2
Fldext. Cinchon.	1	30+	30+	30+	20.0	30+
	2	30+	30+	30+	30+	30+
	3	5 1/4	30+	30+	30+	20.0
	4	2.0	15.0	2 1/4	30.0	30+
	5	1 1/2	20.0	2.0	30+	30+
Fldext. Hydrast.	1	2 1/2	2 1/2	30+	10.0	30+
	2	30+	2 1/2	30+	30+	30+
	3	30+	30+	5.0	30+	30.0
	4	30+	30+	30.0	30+	2 1/2
	5	30+	30+	30.0	30+	4.0
Tr. Nuc. Vom.	1	30+	14.0	18.0	20.0	20.0
	2	30+	30+	15.0	20.0	20.0
	3	4.0	30+	30+	9.0	3.0
	4	1/4	30+	30+	2 1/2	3/4
	5	1 1/4	30+	30+	1 3/4	3/4

Tr. Stramon.	1	9½	30+	30+	30+	30+
	2	10.0	30+	30+	30+	30+
	3	25.0	30+	30+	30+	30+
	4	4.0	7.0	11.0	3.0	3.0
	5	4½	11.0	12.0	3.0	3.0

* Emulsification persisted more than 30 minutes.

CONCLUSION.

The results obtained indicated no general uniformity. Fldext. Bellad. Fol. with the various solvents showed in general least emulsification at the neutral point; Tr. Stramon showed least emulsification in acid solution; the remaining three showed no uniformity. Considering the solvents, petroleum benzin with one exception, Fldext. Cinchon. showed least emulsification in acid solution. The remaining solvents showed no uniformity. The results indicate that the statement "Emulsions are less apt to form in strongly acid or alkaline solutions than in those which are neutral" is true only in specific instances.

Photo, Courtesy Monsanto Chemical Works

RESTORED CHEMICAL LABORATORY AND PHARMACY OF CASTLE OF SAINT ANGELO.

The castle was built by Hadrian in 136; nearly destroyed in 1378. Restored by the Popes. The reproduction of the chemical laboratory and pharmacy was completed in the 17th century; it is located in the rooms on the ground floor.

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THE SALE OF HYPNOTICS IN NEW YORK CITY RESTRICTED.

Section 126 of the Sanitary code recently adopted by the New York City Board of Health provides that no barbital or other hypnotic drug shall be sold at retail or dispensed to any person in the city of New York except upon the written prescription of a duly licensed physician, dentist or veterinarian. The comment provides further that no pharmacist shall dispense any such drug without affixing to the container in which the drug is sold or dispensed a label bearing the name and address of the pharmacist, the date compounded and the consecutive number of the prescription.

First Aid Week—March 13th to 19th.

DEPARTMENT OF BUSINESS MANAGEMENT

Conducted by Paul C. Olsen.*

COMMENTS, QUESTIONS AND SUGGESTIONS ARE INVITED AND WELCOME.

Readers are invited to submit comments, criticisms and suggestions regarding the material which appears in this department. The Editor will also undertake to answer questions regarding general problems of business management. Letters of general interest will be published, but the writer's name will not be revealed without his permission.

ADVERTISING AND SELLING PROBLEMS IN DRUG STORES.

Store Layout and Arrangement—Concluded.

BY PAUL C. OLSEN.

Retail pharmacists have many legitimate complaints to make about the conditions and problems they are compelled to meet. One of the most unusual complaints I ever heard, however, from a retail druggist was one expressed to me by the proprietor of a southern Indiana drug store.

I had asked him if he had had any experience in his store with a display table featuring first-aid supplies. This was his answer.

"Yes sir, I had one of those displays right in the middle of that floor space you see there for two weeks and finally I had to give it up. You know I had to spend fifteen minutes to half an hour every morning right after the store opened, straightening up the goods on that table and looking up merchandise to put out to replace what had been sold!"

I suppose this druggist is better off without such a display and its daily interruption of the tranquility of his morning routine. Incidentally, I suspect, the major part of his morning routine consisted of a thorough reading of the Indianapolis morning paper and then a sidewalk conference with the hardware merchant next door. The invariable upshot of these sidewalk conferences, I am sure, is an agreement that the local people don't appreciate the hometown merchants and are going to Indianapolis in steadily increasing numbers to do their shopping.

The druggist expressed in reverse English a principle which is well known to all successful merchants. Displays, if they are at all successful, will sell merchandise. Careless customers, too, will upset displays and thus handicap their selling power. All this means that the store proprietor must exercise, through the day, constant care and watchfulness to see that his displays are well arranged and in order.

Disorderliness and a lack of care and arrangement become apparent more quickly in the case of some displays than is the case with other displays. This danger of lost sales and profits is present, however, in all types of displays. It just is a little more apparent in the case of some.

Harvey P. Frank told me, for instance, that in a drug store in Florida which he managed soap would sell steadily and in large volume when displayed in a wire

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waste paper basket placed on the counter and tilted a little forward. The minute the basket became less than two-third's full, though, sales of soap from it stopped immediately. When the basket was filled again to capacity, the sales from it magically began again.

How many times does one see in a drug store display cards with one or two items still hanging dejectedly to them. Merchandise won't sell when displayed in this form and the use of display space in this way prevents its use for displays of a type which would sell merchandise.

It is common advice, of course, to say that displays should be clean and orderly. Customers expect it. What I have tried to show in the paragraphs above is that unless displays are clean and in order, sales and profit opportunities from them are greatly reduced or even vanish altogether.

What is true with respect to cleanliness and order of merchandise displays applies, of course, with equal force to the fixtures and equipment used for showing the merchandise. Adhesive tape is a simple and effective way of making *temporary* repairs to cracked glass. The emphasis in the sentence above should be upon the word temporary. When adhesive tape has served so long that it is grayish black with grime, and its edges are curled and frayed, that is a notice to all who enter of carelessness and indifferent storekeeping.

A druggist in a county seat town in eastern Kentucky has a glass-topped case directly alongside the wrapping counter, a spot where most of the customers stand while waiting to be served. Underneath the glass is the red typewritten warning, "Danger! Don't lean on the glass and don't lay packages here."

"I hope that little card will save me money," this druggist told me when I visited him recently. "I have had the top of that case cracked three times in the past three years. Aren't people careless with other people's property?"

People enter drug stores for professional services and for merchandise sold there. They don't come in for instructions on how to behave. More than one soft-spoken, easy going Kentuckian who has patronized this drug store in the past is likely now to go to a store which does not display signs carrying injunctions on what not to do. It would be far better for this druggist to move his case or remove the glass from it rather than to risk reducing the most priceless possession he can have—the good-will of his customers.

In past years there has been a tendency to buy fixtures and equipment on the basis of their own beauty, rather than for their ability to increase directly or indirectly the sales and profit opportunities of the store in which they are placed. The only possible justification for the purchase of any item of fixtures or equipment is the contribution it can make toward increasing sales and profits. This contribution may be direct or indirect.

It may be, for instance, in the form of protecting perishable merchandise, thus insuring that customers receive this merchandise in the finest possible condition. Biological refrigerators do this, of course, in the prescription department. Similarly, a label cabinet reduces waste and consequent printing costs and helps to make possible more rapid and accurate service to customers.

The type of cash drawer which requires mysterious manipulations under it in order to open it, and the opening of which is accompanied by loud and unmelodious bell ringing is now to be found mostly in Chinese laundries. Few

druggists would think of making change from this time-honored device. Almost everywhere it has been succeeded by the cash register. The cash register, when carefully and fully used, insures far greater accuracy in the handling of cash and it also produces at the same time, a number of vital and exceedingly useful records of the day's business.

The mistake which is usually made in purchasing cash registers is to buy registers which are unsuited to the store they are to serve. I saw a six-drawer register put into a drug store which never in the brightest days of the Coolidge era had ever taken in more than $50 in a day nor employed more than two sales people. For a fraction of the amount the druggist had promised (on deferred payments) to pay for this register, he could have purchased a machine adequate for his needs and devoted the rest of his money to some very apparent and much needed improvements in the store building. Certainly a $1200 cash register is incongruous in a $40 a day drug store with a grimy and worn out linoleum and cracked and discolored plastering.

Another example of a failure to obtain full profits from the money invested in cash registers came to my attention in a drug store in Eastern Pennsylvania. This again was a drug store with sales of $35 to $50 a day. To avoid the inconvenience of walking from the front of the store to the one $300 cash register he had at the other end of the store, this druggist adopted the amazing expedient of making change at the front of the store from money which he kept there in a battered cigarette carton. What an unfair temptation this was to employees of the store!

Obviously it is necessary for the proprietor of a drug store to carry on many activities which, while vitally necessary, do not contribute directly to the profits of the business. He must have, for instance some convenient place to file the merchandise invoices, as well as the prescriptions which he receives. There must be a safe in which to keep over night the store receipts and valuable papers. If the proprietor is of a promotional frame of mind he is constantly sending to his professional and lay patrons information about his store. Then there must be a place to keep this material until it is used and usually, too, a convenient means of recording the result from its use.

If his store serves people who demand credit service, that creates a need for space and equipment in which to file the records of these sales. Also there is the necessity of space in which to prepare monthly statements for mailing and to make other entries in the records.

What I am trying to emphasize is that all of these necessary and unavoidable tasks and the space and equipment which they require should not be carried on in store space from which profitable sales can be made. A drug store has so many different kinds of articles to sell that even the proprietor and his assistants frequently forget about some of the things they have there to sell. How important it is, therefore, to use every available square foot of space which customers can be made to visit in the store for the showing of goods which the store has for sale. A drug store proprietor deliberately sacrifices sales and profit opportunities when he uses store selling space for non-selling activities.

Balconies and mezzanine floors in some drug stores have been made available for selling space for merchandise and services. Telephone booths, soda booths

and tables and even a book department often have proved profit makers in such spaces. Basement space sometimes can be used similarly.

When my friends Walter Whelan and Frank Colahan bought a long established drug store in Philadelphia, one of the first things they did was to remove to a rear store room the ancient roll top desk which had stood like a landmark for years alongside the wrapping counter in this store.

The profits from the merchandise which has been sold in this store from the space once occupied by this venerable but wholly unproductive piece of furniture have been more than sufficient to pay each month the carrying charges on the store property which they own and occupy.

The kinds of customers which a drug store serves determine to a considerable extent the type of fixtures and equipment it should have. As I said before, there has been a marked tendency toward the purchase of unnecessary elaborate and costly fixtures and equipment not only in drug stores but also in many other types of retail stores. I don't mean to suggest that a drug store in a wealthy residential community should have fixtures and equipment which make the store look like a section of a Ghetto push cart market. That would be as foolish as to equip Peacock Alley in the new Waldorf with park benches.

Fixtures should be appropriate but no more elaborate than is justified by the character of the store and the clientele served. Unnecessarily elaborate fixtures have proved a handicap to many drug stores. They attract attention to themselves rather than to the merchandise they are supposed to help to sell.

On the other hand, it is well to remember that the impression created by the fixtures and equipment should be one which inspires confidence in the store, its professional services and the merchandise it has to sell.

Sudden changes in the character of fixtures and equipment used in drug stores often have negative effects. Everyone has heard stories of pharmacists growing prosperous who, either from motives of generosity or personal pride, have put back a considerable share of their profits into luxurous interior furnishings and equipment for their stores. All too often the reaction of customers to such a change, particularly customers with limited incomes, is expressed in the following statement.

"They must be making plenty of money in this store. I'm going to trade where prices are more reasonable."

An equally obvious negative reaction from changes in the character of fixtures and equipment can come from a change from the rich beauty of polished walnut to the drab plainness of pine boards. Changes can be made in the character of the fixtures and equipment in a drug store but the best practice, it seems to me, is to make them gradually and, therefore, less evidently.

A druggist who believes, for instance, that less elaborate fixtures and equipment would serve him and his customers better can prove the truth of his judgment by changing part of his equipment to the new form and carefully observing the results as indicated by customers' reactions to the new equipment and sales and profits earned from it.

He may believe, for instance, that sales of toilet goods in his drug store can be made to better advantage from open top tables than from glass-inclosed wall cases. By the removal of one wall case and the substitution of an open top table,

he can prove in a few weeks' time, in the manner above, whether or not his judgment is correct and, therefore, whether or not further changes along the same lines should be undertaken.

PURDUE UNIVERSITY PHARMACY EXTENSION DEPARTMENT.*

BY J. L. WEINLAND.[1]

In addition to the Schools and Departments of Instruction, Purdue University maintains other branches of great importance to the public. The most valuable of these are the extension departments of the several schools. In all extension work at Purdue no correspondence courses are given, nor is university credit granted for attendance at instructive and educational conferences held by the departments.

The Department of Agricultural Extension, organized under an act of the Indiana State Legislature of 1911, has for its function the extension of knowledge and the carrying of the results of the work of the Experiment Station and of the School of Agriculture to persons not in attendance at the University. Its activities are manifold and various, reaching hundreds of thousands of farmers and others seeking a knowledge of agricultural practices and rural betterment.

Likewise, the Engineering Extension Service carries the benefits of engineering teaching and research to persons and industries in various parts of the state. Lectures are given to civic, commercial and industrial organizations. Bulletins and circulars are also issued. Conferences, classes and special schools are held by the University and at various other places in the state for the discussion of problems of interest to those engaged in public works, in manufacturing, and in public utility industries.

Several years ago, Dean C. B. Jordan, of the Purdue University School of Pharmacy, realized that many Indiana druggists had little or no opportunity to study scientific business organization and merchandising, and that there was no group to whom they could go to get impartial and confidential help. He, thus, evolved a plan to help these men cope with their business problems. The Pharmacy Extension Department was planned similar to those functioning in other Schools of the University, except that this Extension would be only for the use of the drug interests of the state.

This service is free to the druggist if the information can be given him from the office in Lafayette. If it is necessary for a worker to go to his store, the only charge made is traveling and living expenses of the worker, no fee being required. Since the Extension Department is in close contact with the retailing interests of the state, the manufacturer and wholesaler can use this service to their own advantage as well as to the benefit of their customers.

In the work of the Extension Department, which includes merchandising, retailing and other business problems, all correspondence and communications, reports, surveys and business analyses are kept strictly confidential, but the lessons learned from each are passed on to all druggists of the State. Information concerning a particular study cannot be obtained by the one for whom it was made.

* Section on Commercial Interests, A. PH. A., Miami meeting, 1931.

[1] Instructor in Extension, Purdue University.

Thus, the service given the drug interest of the State is always confidential and impartial.

SERVICE RENDERED.

Since this work is new to pharmacy, much of the time of the Department has been spent in acquainting druggists with the service offered them. Approximately 5800 pieces of mail have left the office during the past 9 months, 3400 of which were second class, 1700 circular letters, and 700 regular correspondence. Letters received totaled 493, all of which, except about 200, asked for either definite information or for more information about the work of the Department.

At the beginning of the school year, five thousand folders were distributed to retail druggists of the state, pharmacy magazines, manufacturers, wholesalers and others interested in pharmacy. Eleven national drug publications, the *Indiana Pharmacist, Purdue Pharmacist, Domestic Commerce* and newspapers of the State carried stories concerning our work. Other channels of publicity were used to good advantage, so that nearly every druggist in the state now knows of this Department and the service available to him. Manufacturers and wholesalers have coöperated with us in acquainting the druggists of the State with our service, and we appreciate the help they have given.

As was stated, numerous inquiries have been received. Many of them have been for definite information covering problems in merchandising, advertising, financial statement analysis, marketing, etc. It is interesting to note that approximately one-half of these requests have come from drug interests outside of the State of Indiana, including, Illinois, Michigan, Ohio, Kentucky, New York, Wyoming, Texas, Oklahoma, Alabama, North Carolina, Florida and several others. Talks have been made before the general sales meetings of many of the wholesalers of the State. Numerous trips have been made over the State giving the druggists advice and telling them of the service offered.

DRUGGISTS' BUSINESS CONFERENCE.

Many business problems of the Indiana retail drug store operator were ironed out at the First Annual Druggists' Business Conference held at the University on April 8th and 9th. The two-day session, which included discussions by retailers, was held in connection with the Pharmacy Extension Department.

The purpose of the Conference was to discuss methods by which individual druggists could investigate the business activities of their stores and this was more than fulfilled. Most favorable comments were made by the 175 retailers who attended the meetings, all expressing their approval of the new movement to encourage pharmacists to study new business methods and accept ideas from others.

Nationally known men addressed the Conference on various phases of drug store operation, merchandising, new departments and side-lines and increasing sales. Throughout the meetings, they urged the retailer to sell merchandise on which a legitimate profit could be made. It was suggested that merchandise, on which competition was so keen that little or no profit could be made, be given as little advertising space as possible, and all selling efforts be placed on the products of those manufacturers who attempt to maintain price.

Two most instructive and interesting sessions were conducted by the retailers, both meetings being in charge of prominent retail druggists. Druggists from different parts of the state discussed problems peculiar to their localities, and told how they had been successful in profitably solving them. This feature of the Conference was voted to be the most beneficial of all, although throughout the whole session the retailer's view was considered instead of taking up generalities.

At all meetings, only the business phases of retail pharmacy were discussed, no mention being made of technical or professional pharmacy, except one address on merchandising the prescription department.

FUTURE DEVELOPMENT.

In addition to the work now being done by the Extension Department, it is hoped that many new services can be developed next year. Some of these now being planned are:

(*1*) *Educational Window Service.*—Educational and professional window displays are now being arranged. These will be sent to druggists over the state, who will send them on to others, following a definite schedule. This department has received so many requests for this service that two displays are being sent out during the summer. Again, the outstate druggists are interested in the Purdue Pharmacy Extension Service. It is hoped that the druggists will use these displays to increase their professional business and add a more ethical atmosphere to their store.

(*2*) *District Meetings.*—Through the coöperation of wholesalers and manufacturers, district meetings are being planned. These meetings will be held in the larger towns and cities of the state, and business and professional problems of the pharmacist will be discussed.

(*3*) *Bulletins.*—Bulletins are to be published on phases of retail drug store operation.

(*4*) *Accounting System for the Druggist.*—The Purdue Pharmacy Extension Department and the Indiana University Bureau of Business Research are cooperating on a joint study, attempting to find the most practical accounting system for drug stores of different sales volumes. These systems will be used in numerous stores for 6 to 8 months before being released.

(*5*) *Extension Work in Pharmacy* is a new adventure, and Purdue is pioneering in this field. As in all pioneering, it takes some time to prepare the ground for the seed, and this past year has been spent primarily in this effort. The Pharmacy Extension Department will stand or fall depending upon the use made of it by the druggists of the state. After working for one year, we feel very much encouraged and believe our Extension work will develop rapidly.

The responsibility of members to the pharmaceutical profession is in the support given to its organizations so that these may function properly; coöperation means not only support but insistence in protecting public health and promoting general welfare and that the individuals be not swerved by selfish motives.

THE MANUFACTURER AND HONEST MERCHANDISING CONDITIONS.*

BY J. W. SLOCUM.

In a recent address before a graduating class of a mid-western college the speaker departed from the usual custom; instead of painting a rosy picture of the immediate future, he informed them in no uncertain words that they were facing greater economic problems than any former class in the fifty or more years of the history of that institution.

They were informed that six million was the approximate number of the unemployed—that 95% of the wealth of our country was controlled by 5% of the people—and concluded that there was something seriously wrong with a system that produced such results. It has always been an easy thing to ask a question or propound a problem, but an entirely different matter to offer a successful solution. No solution of this problem has yet been submitted by any citizen which by any stretch of the imagination could be considered as a specific. Socialistic ideas are not accepted by thinking men as having any bearing upon the ultimate solution of our economic problem.

If the wealth of our country were divided and distributed equally *per capita* it would only be a short time until millions would have nothing, and the few, several times their allotment. In a few years we would again approach a condition, almost a duplicate of that of the present day.

It has been said that all men are created equal, but they are not created so in ability as much as responsibility. By no process of reasoning can we conclude that men are all given the same ability to acquire. Through the two thousand years of modern history there have always been various divisions of society, and every civilized nation has pondered over this problem, but such divisions will doubtless continue to exist through all the years of human experience. Every nation desires economic conditions to be as favorable to its people as possible.

Much of the difficulty lies in the fact that individuals as well as corporations shrink from assuming their full responsibility toward their fellow men.

Selfishness has dominated the human race throughout the ages of the past and continues to be the paramount issue in the struggle to right the wrongs of society. The sage adage "Every man for himself and the devil take the hindmost" was not nor never has been a true principle of living. We believe in coöperation in business and it is being practiced more to-day than in any period of human history. If we believe in coöperation in business, why should we not believe in the spirit of helpfulness in our relations with our fellow man. You will agree, I am sure, with the poet who expressed it thus:

> I don't pretend to be a judge of right or wrong in men;
> I've lost the way sometimes myself and may get lost again;
> But when I see a chap who looks as though he'd gone astray
> I want to place my hand in his and help him find the way.

We cannot escape our individual responsibilities, whatever they may be.

We believe the time has come when manufacturers must realize that their responsibilities do not cease when they place a product on the market and stipulate

* Section on Commercial Interests, A. PH. A., Miami meeting, 1931.

a wholesale price for the retailer. He recognizes the self-evident fact that this product must have merit, and that he must maintain that high standard of quality, if his product is to continue in favor with the ultimate consumer. The success of his business depends upon a prompt recognition of this fact and, naturally, he bends every energy to accomplish that end. In too many instances, however, the manufacturer, in his plans for distribution, overlooks the interests of his most important ally, the retailer.

The retailer is convinced that the responsibility of the manufacturer does not cease when he names a wholesale price for his product and assumes that the retailer will sell it for a price which will yield a legitimate profit. Ordinarily this assumption would seem consistent, but when present-day unscrupulous methods of merchandising, destroys the possibility of a legitimate profit on his product, the manufacturer should have the right to protect his own and the retailer's interest.

The average individual or retailer, in the final analysis, will admit that a dealer may have a legal right to make a cut price on a well-known item of merchandise, as long as it may be construed to be an honest attempt to increase his sales and profits on that product, but all of us know that the really vicious phase of the price-cutting evil is the exploiting of an honest piece of merchandise at a price less than the wholesale price, using it as bait to decoy customers and to give the impression that everything is being sold cheap.

This is a contemptible practice. The manufacturer's interests in such an instance are jeopardized and his own efforts to popularize his products have worked to his disadvantage. The craze of sacrificing profits to secure volume is never justified as a part of any merchandising policy.

Quantity buying for the most part has been detrimental to the best interests of large numbers of independent retailers. One of our leading experts states emphatically that no retailer is justified in making a quantity purchase, regardless of the discounts and free goods, which cannot be disposed of in a period of 90 days.

If a yearly net profit, which should be the goal of every retailer, is to be obtained, a turnover of three to four times must be achieved. Too many druggists have double the stocks at inventory time, which is justified by the volume of business actually done.

Conditions throughout the retail trade have been in a state of upheaval during the past two years. There seems to have been two distinct classes of retailers in the field of retail distribution. One group is interested in putting forth a merchandising effort in the interest of their own profits and volume, by performing a merchandising service for the manufacturer.

The second group is not interested in merchandising a manufacturer's line but, primarily, interested in supplying demand on call. The first group deserves every consideration from the manufacturer as a part of an ideal plan to perpetuate the best interests of all concerned. It would, therefore, seem inconsistent for the manufacturer to put all retailers into the same class. In other words, is a manufacturer fair who fails to recognize that certain dealers are performing a real merchandising service of definite value to him, and should he not lend encouragement to the retail dealer for these extra merchandising and advertising services?

Despite the growth of large distributing corporations, the manufacturer should know that a large part of his output must be through small dealers. The small dealer should, therefore, receive the primary consideration in formulating plans for marketing merchandise.

Price appeal occupies entirely too large a place in the present scheme of things and quality is being overlooked. In an address last September, in Boston, Mrs. Christine Frederick spoke the truth when she said—"What we want is better merchandising and more intelligent human understanding of our psychology and problems. Retailing has degenerated from intelligent merchandising into automatic bundle wrapping."

It is a fact worthy of note that druggists, as a class, are considered by manufacturers as the best merchandisers and distributors of all independent retailers, but unfair trade practices permitted by producers have nullified much of their prestige.

The question of price maintenance has been one of paramount importance for many years and bids fair to remain so for some time to come. Out of this great controversy eventually will come some sane legislation that will revive business conditions. The enemies of Fair Trade legislation viciously call it "price fixing" in order to prejudice the minds of those who do not analyze the situation; but to the thinking individual there is a vast distinction between price fixing for greed and price stabilization from necessity, which keeps open the other important elements of competition, quality, service and cost reduction.

The American people as a people, are against discrimination; fair play has always been the slogan and the underdog generally has his full share of sympathy; and in this price-maintenance controversy, it is very evident, fair play has not always been granted. We believe it is only just to grant manufacturers of trademarked articles in fair and open competition, the same right to do what several gigantic corporations are doing to-day—namely, to fix and maintain the resale price of their products.

If these corporations—who have the necessary capital to distribute their products—through agents or by consignment, fix and maintain the resale price of their products, there is no legitimate argument against extending the same rights to the small producers. Certainly, if such a system of price maintenance is not against the public interest when practiced by large aggregations of capital, it should not be against the public welfare when practiced by independent manufacturers in fair and open competition.

In the two years of so-called "Profitless Prosperity," 1928 and 1929, it is stated by eminent authority that from three to five billion dollars worth of goods were sold at less than the cost of production, in a wild jungle war of retail merchandising with the ultimate purpose, in certain sections, of destroying competitors. The inconsistency of certain corporations in their opposition to price maintenance is apparent, when it is pointed out that customs agents under the direction of the Secretary of the Treasury made purchases of 17 items of imported merchandise from a large corporation on which the retail prices ranged from 136% to 1012% above actual cost. This same corporation was engaged in selling American-made trademarked merchandise for less than the wholesale price. It is this deception of the public to which the independent merchant rightfully objects.

Mr. Coolidge once said that—"Prosperity does not come from cheap goods but from fair prices," and prosperity is liable to linger around the corner until the principles of that quotation are reëstablished.

The independent merchants who still handle 60% of the retail business of this country cherish the principle of equal opportunity upon which our country was founded, and recall with gratification the course of its growth and plead for a fair chance to continue the business in which they are engaged.

Representative Kelly says that practically every civilized country in the world accepts the principle of price maintenance as a matter of course. England, France, Germany, Holland, Spain, Denmark, Sweden, Norway and others have never questioned the fact that the maker of an identified product should not be interested, especially, in the price at which it should be sold to the consumer.

A prevalent condition that has driven 800,000 independent merchants out of business in recent years certainly merits the attention of our National Congress. The contention that the entire responsibility for the present mania for cutting prices rests entirely with the manufacturer is somewhat difficult to maintain. We do believe that there are several things manufacturers could do, that they are not doing, which would relieve the situation to some extent; but, until legislation is enacted permitting contracts of agreement to maintain prices, it will be difficult to formulate and carry out a plan which will be free from entanglement with the Federal Trade Commission.

Yet in the face of the above statement, a manufacturer of my state has demonstrated how it is possible to maintain prices without the contract of agreement; with that outstanding principle as a foundation this manufacturer has builded a business that has withstood the attacks of the powers that be. The inherent right of any manufacturer to select his own customers and to refuse to sell to any customer for any reason whatsoever has been the Gibralter which has wrecked the hopes of those who would destroy the principle upon which this business was founded. What this manufacturer has done any other manufacturer can do.

Few manufacturers have the stamina to refuse large orders of a quarter to a half-million dollars, when the acceptance of that order would mean the abrogation of a foundation plan. The respect, admiration and coöperation which this heroic stand has won for the company referred to, in the face of formidable obstacles, is worthy of commendation, especially at a time when the lack of consistent effort on behalf of the retailer is so conspicuous by its absence.

Many large concerns are not hampered by conscientious scruples; there are, perhaps, skeletons in the closet which must remain concealed.

Dr. Julius Klein, in one of his radio addresses, relates the incident of a sensitive lady who gave a genealogist $1000.00 to investigate her family tree. To her amazement, he came back in a couple of days and asked for $1000.00 to keep quiet about what he had found. Some relative, it seems, had wandered from the narrow path and had ended up by being electrocuted. The lady settled with the genealogist as best she could and then announced to her friends that one of her ancestors had "occupied the chair of applied electricity in a well-known institution."

As we see it, the first thing a manufacturer should consider, after making a meritorious product, is to provide for the welfare of his co-partner, the retailer,

and see that his share of the profits are secure. Until that is done there can be no amicable arrangement which will be mutually satisfactory.

It is hardly in accord with the eternal fitness of things to pronounce an operation successful if the patient dies. What business needs is a major operation from which recovery is certain. It is said that during the past 40 years there have been seven periods of depression. From these recovery has been made, although the period of convalescence has in some instances been more or less prolonged. That business will recover from the present slump—there is not the slightest doubt and, while there may be obstacles to overcome in the immediate future—sound business principles will prevail and we shall emerge victorious.

PHARMACY IN A DUTCH HOSPITAL.

BY T. POTJEWYD.*[1]

In 1926, Miss Bertha Ott[2] and Miss Frances Greenwalt[3] described in THIS JOURNAL the position of pharmacists in American hospitals; in connection with these papers I will endeavor to give an outline of the pharmacist's life in a Dutch hospital.

Unlike the situation in America, the hospital pharmacy in Holland differs very little from that of retail pharmacies. The reason is, that the dispensing pharmacists in Europe do not know about soda fountains, the selling of candies, cigars, etc. Most pharmacists in Holland have chiefly a dispensing department and in a small way they sell package medicines, toilet requisites and surgical appliances. Although the dissimilarity of Dutch pharmacies and those of the United States may not be great, the Dutch hospital pharmacy may present striking differences; one is that in the Dutch pharmacy not only pharmacists, but also pharmacist assistants, are employed—persons who have passed examinations far less exacting than those required of chemists. That is the reason assistants are not given the privilege to prepare medicines, except under the supervision of a pharmacist. Most hospitals employ only one or two pharmacists and four to ten assistants. Moreover, men servants are often employed who are trained in designated work (such as preparing, disinfecting and other solutions), and photographical developers; besides, they deliver the medicines to the clinical departments. To the profession of the pharmacist belongs first of all: the giving of instructions to his employees; secondly, the supervision of the preparation of medicines and, lastly, his watchfulness for a good supply of medicine to the hospital. He is also charged with buying the medicines and, therefore, he frequently finds an opportunity to make use of the commercial side of his career. Although the private pharmacist buys nearly everything from the wholesale dealers, the hospital pharmacist can order his ingredients direct from the producers and, as the annual consumption of many articles is almost constant by a large preemption, this results in a considerable saving of money and the purchase is simplified by it.

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[1] Secretary-General, International Pharmaceutical Federation.
[2] JOUR. A. PH. A., May 1926, page 391.
[3] *Ibid.*, page 394.

Naturally and of necessity, the quality of many of the ingredients must be examined, so that in the compounding and preparation of medicines one may be certain of having used the best of components. This necessitates that the pharmacist must keep up a card index of the stock and purchase of drugs and chemicals that can be employed in a well-appointed laboratory. Moreover, the hospital pharmacist will have these preparations standardized so that both a galenical and analytical laboratory are necessary. Hence, a laboratory with distilling apparatus, kettles, drying closets, etc., is installed. The dispensing pharmacy requires a place where the utensils can be cleaned and where, at the same time, empty pots and phials can be stored. Moreover, the pharmacy is equipped with spacious storerooms for medicines and a suitable depository for easily inflammable goods.

The University Hospital was built in Leyden during the World War and gradually completed after 1922. In 1930 the pharmacy of the old building was removed to the new building. The old building was erected in 1880, according to the views of that period, *i. e.*, all the different branches of the medical profession were in different wings of one and the same building; the departments for the new Hospital consist of different buildings, and only otiatrics and dermatology are united in one building. The professors have their special clinics, and next to the said building for otiatrics and dermatology are buildings for internal medicine, women's diseases, surgery, children's diseases, ophthalmology and psychiatry.

A separate building contains other service branches of the hospital, as the kitchen, storerooms, technical departments, etc. A second building, which gives the impression of the main building, is for the director and the administration of the hospital, and the pharmacy is also to be found there. As the latter, with regard to its appointment, was brought absolutely up-to-date, here is a pharmacy not to be paralleled.

The work is arranged as follows: In the morning, about 10:30 the daily demands for medicines from the departments must be in the pharmacy. The requirements are recorded in books; in a few of the departments the demands are entered on the previous evening, so that the books are in the pharmacy by 8:30 of the next morning. One of the assistants begins by writing the required labels for the phials and boxes, and these labels are divided among the assistants, who do the practical work and who, respectively, have special assignments. Some of them only prepare solutions and mixtures; others, powders, pills and ointments. This distribution of work rotates, so that each assistant is informed relative to all divisions of the work of the pharmacy. Another assistant lists the orders for packaged medicines and phials of sterile solutions and other medicines kept in stock. A second list includes wound-dressing requisites. Finally, in every book a printed list is to be found, on which the nurses of the departments can enter their requirements, such as ether, oil, glycerin and disinfectants. At about 10:30 A.M. all orders have come in and shortly after that the administration is completed and the assistant in charge can begin collecting the medicines in stock on the basis of the first list. All packaged medicines, sterile solutions and ointments are then assorted for delivery in a designated place; moreover the assistant has instructions relative to the refilling of phials, which have been sent to the stock-room.

During the lunch hour, from 12:00 to 1:00, there is only one assistant on duty; the last prescriptions are prepared, so that by 2:30 P.M. everything is ready. The

prepared medicines are then put in a place fixed for each of the departments; verification is made by comparison with the books in order to be assured that the prescriptions are correctly copied from the books on to the labels, and whether all the phials and boxes are ready for the departments requiring them. Finally, at about 3:00 o'clock all orders have been filled, and one of the men-servants is called, who comes to the pharmacy with a delivery cart, takes all the medicines and the books of the pharmacy and delivers them to the different departments. The nurses of the departments receive the medicines and divide them among the patients. Preceding the latter carting, all the medicines and disinfectant solutions that were ordered on the demand-lists have been delivered. These solutions are kept in stock and are always ready for delivery, so that when at 1:30 the men-servants return from their off-time, they can be delivered.

The pharmacy is open from 8:00 o'clock A.M. until 10:00 P.M., but all the assistants have an eight-hour working day. In turn, each of the assistants is resident in the hospital for a week; also, during night duty, the assistant has an eight-hour working day; however, for the greater part, not at the same time with her colleagues, as her task includes being on duty from 6:00 to 10:00 in the evening and during lunch time. Moreover, she is also on duty on Sundays, the pharmacy being open from 9:00 to 1:00 o'clock and from 6:00 to 7:00, while during the hours when the pharmacy is not open, the assistant must be within reach, *i. e.*, she is allowed to go out of the hospital, provided she has left her address.

In this article the distribution of the work in a pharmacy has principally been dealt with; in the next contribution the position of the pharmacist will be considered.

THE DUTCH HOSPITAL PHARMACIST.

BY T. POTJEWYD.*[1]

In the preceding article[2] the organization of the medicine supply in a Dutch hospital was described and also, requirements that the hospital pharmacy must meet. In this paper more attention is given to the status of the pharmacist in the hospital life, so that this article can constitute a supplement to the excellent article by Misses Bertha Ott and Frances Greenwalt in the JOURNAL of 1926.

As has been explained in the preceding article, one of the foremost duties of the pharmacist is to give direction to the work of his employees. The latter are, as before stated, not exclusively assistant-pharmacists, whose work principally consists of preparing the medicines, but also men-servants, who do the coarser work.

It is often possible for the pharmacist to introduce simplification of methods, which bring about economy and conservation of labor. Considering that every day a number of bottles of oil, ether, glycerin, etc., are required, it will be economical if a larger number of bottles than immediately required are filled at the same time. One day 200 bottles of oil are filled; the next, 300 bottles of ether, and so on. This has advantages over the old method of each day filling only as many bottles as are wanted for the delivery. When a number of bottles have to be filled with

* Pharmacist, University Hospital, Leyden, Holland.
[1] Secretary-General, International Pharmaceutical Federation.
[2] See January JOURNAL.

aqueous solution of phenol, one can put in each bottle a quantity of phenol liquefactum and after that fill them with water. We have a 200-liter cask supplied with a tap and a gage-glass. On the gage-glass lines are graduated according to a certain cubage. In this cask the solution is prepared, sufficient for some tens of bottles, each containing 3 liters and in very little time the contents of the cask are filled into bottles. All the empty bottles, returned from the departments, in which disinfectant solutions have been delivered, are once more refilled with the same solution. The selection of these bottles is made easier by use of differently colored labels attached to the bottles; the labels of the same color for different liquids are thus marked, so that the contents of the respective bottles are readily recognized. Related methods economize the work in a pharmacy, and it is the pharmacist who has to point out such improvements to his staff.

When in a pharmacy, ointments are regularly prepared that contain sulphur as an ingredient, the ever-returning sifting of the sulphur and the careful rubbing of the sulphur with the fat can often be conserved by keeping a very carefully-prepared and high-percentage mixture of sulphur with the ointment constituent in stock. When it involves a rather large quantity, a similar rubbing can be done mechanically. By such improvements there is economy of time and also the patients are more promptly served.

The foregoing are among the important activities of the pharmacist; he has also the duty, because of the requirement of Dutch legislation, to examine the purchased medicines. The pharmacist-assistants are responsible for the prescriptions they prepare, in so far as this concerns correct preparation; for the purity and the preservation, however, only the pharmacist is responsible.

The hospital pharmacist finds in this part of his task a great satisfaction, for most of the medicines used in a pharmacy are not to be found in the Pharmacopœia. Hence, in this respect, he has the opportunity to look up various references in literature or, eventually, to devise an examination scheme himself.

As has been stated in the preceding article, the hospital pharmacist will often buy large quantities of medicine, sometimes in preemption, such as hundreds of kilos of phenol or barium sulphate, and in this case it is worth while to make a comparative examination as to the qualities of the different samples. Many medicines, belonging to the packaged medicines, will frequently be called for in a pharmacy. Often these medicines can easily be replaced by medicines prepared in a pharmacy; moreover, no end of expense can be avoided in this way. A closer contact with the physicians will sometimes occasion a more extensive examination as to the possibility of giving a certain medicine a form in which it can be applied. As the pharmacist is not infrequently the only person in the hospital who has received a thorough education in chemistry, he can often assist the physicians, who want to do chemical-clinical work themselves, and that is why the pharmacy can be charged with the supply of simple solutions or of chemicals for analytical purposes. Also, because of his chemical education, the hospital pharmacist is often charged with the forensic examinations which regularly occur in each hospital.

In many Dutch hospitals the pharmacist does the clinical examinations, and sometimes he can utilize persons trained in chemistry. This, however, is not the case in the pharmacy of the University Hospital at Leyden. A special laboratory, under the direction of a medical man, is to be found there for such examinations.

On the other hand the pharmacist is charged to inform the pharmacy students relating to practical pharmacy. This institution added to the pharmacist's education some years ago. For an extended explanation of the pharmaceutical study in Holland, we refer to the article that appeared in the *Pharmaceutical Journal and Pharmacist* of March 31, 1928. To this study the following has been added, namely, that the students, after having completed the first part of their examination are required to work in the hospital pharmacy for three months. Here they are instructed in the dispensing of medicines, they prepare a number of galenical preparations and have the opportunity of participating in the dispensing of medicines in the pharmacy; in this way they can follow the practice of their future profession.

Finally, the important assistance the pharmacist can lend to the managers of the hospital respective to the purchase of foodstuffs should be pointed out. Some pharmacists are *f. i.* charged with the regular chemical and bacteriological examination of milk, or with that of butter, cheese, etc. On behalf of the technical department, they can occupy themselves with examining the water or the softened water for washing purposes and, in general, their assistance is called for concerning all those problems for which chemistry can or cannot find any solution.

Thus the daily work of the hospital pharmacist, no doubt, gives all possible satisfaction, and it can be stated—that in the Dutch hospital the pharmacist finds an opportunity to work out more closely all the branches forming part of his study. I desire to point out minor differences between the work of a private pharmacist and a hospital pharmacist in Holland. My present work does not differ very much from that I practiced in a private pharmacy in Amsterdam. That pharmacy had many patients inscribed in insurance companies; large quantities of medicines had to be purchased and other medicines were closely examined.—That is why I disposed of a well-appointed laboratory, and, hence, I could also make other examinations, most of them on behalf of the small industry.

Finally, the place the hospital pharmacist occupies in the hospital organization should be pointed out. If one has, as is the case in some hospitals, a director who is at the same time physician of the hospital, one can be certain that this director knows all about the patients and their nursing, and the pharmacist will be a co-operator of this director.

In other hospitals, as in Leyden, where the director is exclusively a commercial leader, the pharmacist occupies a different place. There, by virtue of his work, he gets in touch with the professors, working in the clinics and with their medical assistants; moreover, with the manager, the head of the nursing departments and the head of the technical department, he is put under the director of the hospital.

In this hospital, he only carries the responsibility for everything concerning medicines elsewhere; for instance, in the Hague the hospitals have not a pharmacy of their own, but the medicines for all the hospitals and for the employees of the municipality are prepared in a central pharmacy. For this purpose, the pharmacist has a budget quite his own, the bookkeeping is thus regulated, that the money spent for medicine for each hospital is reëntered in the budget of the municipal pharmacy; in consequence, the pharmacist is also entrusted with the commercial direction.

Whatever the regulations may be in a hospital pharmacy, one always finds an opportunity to work on behalf of suffering mankind, the manager being charged with the responsibility of the economical direction of the whole hospital.

As the pharmacist is in constant contact with the doctors, he can coöperate with them; usually, circumstances render a fruitful coöperation possible. That is the reason every pharmacist will be satisfied with his work in a hospital, and everyone who started upon his study with ideals is certain to enter upon his duties in a hospital with great enthusiasm.

THE MEDICAL HALL, EASTLEIGH, ENGLAND.

Last fall, window dressing contests were held in various parts of England. "The Hospital Committee Challenge Cup" was won by Idwal Rees, pharmacist on High Street, Eastland, with 81 marks out of 100, the window being dressed by Mr. Rees. It will be seen that the display is largely historical but shows action—note the figure, percolation, etc. Mr. Rees stated that the effort was to show professional pharmacy by apparatus used in dispensing. In commenting on the window one of the judges said Mr. Rees had gone to the foundation of the drug business for his display and conveyed the message of pharmacy.

FOOD AND DRUG ADMINISTRATION CONFERENCE.

A conference was held on January 18th of the Administration and drug importers, and those not present may submit views in writing.

At the present time, in suitable cases, after proper application, parcels of certain crude drugs violative of the Food and Drugs Act, because of excess of foreign organic and (or) inorganic matter are allowed conditional release for recleaning.

It is now proposed to discontinue conditional release in such cases and to require exportation in all instances where crude drugs violate the Food and Drugs Act because of excess over the National Formulary or United States Pharmacopœia requirements of acid-insoluble ash or foreign organic matter.

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

C. B. JORDAN—CHAIRMAN OF EXECUTIVE COMMITTEE, A. A. C. P., EDITOR OF THIS DEPARTMENT.

METHODS OF PRESENTING PHARMACEUTICAL CHEMISTRY.

BY E. D. DAVY.*

After reviewing the comprehensive report of the Committee on Curriculum and Teaching Methods, one is brought to a realization that the term, Pharmaceutical Chemistry, has been much abused, and after offering ample evidence of this fact from a review of the catalogs from all member Colleges of the Association a definition was formulated which follows, "It designates that specific branch of science dealing with the chemistry of substances used in medicine, the production of such materials and the tests applied for their detection, qualitatively and quantitatively."

It is very difficult indeed to keep from encroaching upon the field of Scope and Prerequisites in discussing the presentation of this special branch of chemistry. However, it is necessarily assumed that the student has had the usual prerequisites to the courses of Pharmaceutical Chemistry, so that the method of presentation assumes a place of first importance.

To quote from Norman Campbell's "What Is Science," "Whenever we undertake any practical action, we have two decisions to make. We have to decide what is the end of our action, what result we wish to obtain, and we have to decide what is the right means to that end, what action will produce the desired result. Conflicts between the ends and means arise and it is a necessary step to disentangle the conflicting elements."

In our teaching methods we should aim to present such material and present it in such a way as will enable the student when in the active practice of his profession to understand and to be able to converse intelligently on the subject matter in his main guides, the Pharmacopœia and National Formulary; also to apply it in a practical way if called upon, or to make proper use of it if he should continue in advanced work, keeping in mind the purpose in presenting a principle that may be generally rather than specifically applied.

We are sometimes reminded of our shortcomings in teaching methods, but in the writer's opinion the success or failure attending such efforts must be judged by the response of the student, whether his interest is spontaneous or whether it is necessary to resort to pressure.

Many times the teacher in his preparation for the presentation of a given course remembers the methods of the professors under whom he has studied; he has evaluated their results and attempts at emulation. He may find that certain methods successfully used by them are not suitable for his needs. Upon reflection and study a modified method may be developed showing individuality and a marked degree of success.

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In the above the writer does not wish to suggest the trial-and-error method of teaching, neither does he believe it advisable to hamper progress by too rigid methods, rather, flexibility should be provided.

Some methods of presentation often provide for effectiveness only to meet the exigency of mass production, emphasizing group rather than individual effort. This certainly is not conducive to good results.

The teaching of Pharmaceutical Chemistry lends itself admirably to the application of new procedures, assuming, of course, that the inorganic, qualitative, quantitative and general organic chemistry have been completed.

The most difficult problem in the presentation of this special chemistry, is the human equation. If all teachers had like training, like interests and the ability through experience to point out the application for the particular material being presented, coupled with the proper spirit, this question would scarcely be a pertinent one here. However, in view of the fact that such is not the case, the following is offered in the order indicated.

TEXTBOOK METHOD.

It should be emphasized that the textbook method of presentation must be supplemented by the instructor and should serve only as a guide. The students during their first three years have been taught mainly from textbooks, which is only logical, but after this basic training they have been, in the writer's experience, eager to go to the library with reference assignments as a guide and study the subject which is under discussion.

Certain unavoidable differences of opinion as to arrangement in textbooks can be corrected only by the instructor, likewise no textbook can give a full and adequate treatment of all important topics. That which one might consider important and stress in a text may not fulfil the needs of another. Any enlargement necessary must be the field of the instructor, which precludes an acquaintance with the current literature and standard texts, coupled with the instructors' practical experience.

This brings us to the application of all the modern texts and journals to which the student should be assigned pertinent topics so that a free discussion may be involved and individual judgment applied. Since these subjects invariably involve a laboratory operation they should be studied together.

THE LECTURE METHOD.

The lecture method of presentation without recourse to any guide except the United States Pharmacopœia and National Formulary, other than that which the instructor shall present.

This method lends itself admirably in those cases in which the instructor has had considerable teaching as well as practical experience, and constantly keeps in touch with the newer developments.

Such a procedure of necessity requires that assignments be made to the literature upon the topics to be subsequently presented to the class. In this way the student acquires the habit of reference work and little trouble is experienced in a continuance of the practice. In this way also the student's objection that he is

being held responsible in examinations for material not in his textbook is entirely eliminated.

TOPIC ASSIGNMENT METHOD.

This method is somewhat in keeping with that followed in advanced work, namely, the assignment of different topics to each student, with scarcely any direction, leaving the student to develop the ingenuity necessary to the final solution of the problem. With exceptional students there is little doubt but that they will make a creditable showing, while the average or below average student has accomplished little or nothing as a result of his efforts. A basis for such procedure should first be established by well-outlined work.

The following discussion applies to any separate one of the three methods previously outlined.

If the colorimeter, polariscope, refractometer or other special equipment are to be presented, they should by all means be accompanied by sufficient work in the laboratory in order to demonstrate their practical application. Demonstration of this equipment to a class or to groups of students is far removed from teaching.

From an analytical point of view the presentation should not involve a great number of laboratory assignments for the sake of method, but rather one of accuracy and a thorough understanding of the application of data when at hand. In other words, the student should be taught, when quantitative results become qualitative, as for example, refractive indices, iodine values, optical rotation, specific gravity, etc., represent very definite values but may be used as a means of identity as well as purity standards.

Supervision of the laboratory work should not necessarily be as extensive as that of the early chemistry training, but it has been found quite helpful for the student to have an exact subject outline of the laboratory work to be done. Detailed laboratory note books should be kept by the student and they should be periodically inspected and graded.

Organic Pharmaceutical Chemistry as has been outlined tentatively for the Syllabus may well be limited to those substances in the United States Pharmacopœia and National Formulary, except perhaps to digress in the selection of topics from new synthetics or recently isolated natural products from plant and animal sources, in order to keep the student alive to current progress. This subject lends itself perhaps less than any other to the textbook mode of presentation.

In conclusion it may be said that one's success or failure in presenting any phase of Pharmaceutical Chemistry depends largely upon ability, personality and interest in the particular work which is allotted for his presentation.

THE SCOPE OF PHARMACEUTICAL CHEMISTRY.

BY GLENN L. JENKINS.*

An incomplete study of the course descriptions under pharmaceutical chemistry as set forth in the collective pharmacy school catalogs reveals a great diversity

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of subject matter. Taken as a whole, the descriptions indicate that a "shotgun prescription" of academic instruction containing some chemistry, a little pharmacy, a little therapeutics and even some posology is administered to our students under the name of pharmaceutical chemistry. Under other departments of instruction, a similar variety of course content is included. Thus, in pharmacognosy, it is the rule rather than the exception to find usage or therapeutics and dosage or posology included and, in pharmacy, assaying and qualitative chemical tests are frequently given. Herein lies one of the most severe and far-reaching criticisms of much of our pharmaceutical education as made by non-pharmacists. In answer to the question "What is Pharmacy?" they conclude from a study of our catalogs that pharmaceutical sciences are a hodge-podge of sciences and that they have no distinct entity of their own.

Pharmaceutical chemistry may be defined as that branch of chemistry which treats of the materials employed in pharmacy. It is a division of applied chemistry which utilizes the theories and the practices of chemical science just as agricultural chemistry and food chemistry do. The scope of pharmaceutical chemistry is and has always been fixed. Therapeutic usage does not fall within its scope except as it may be essential to point out chemotherapeutic relationships, the pharmaceutical importance of certain materials, or to explain certain terms, for example, mydriatic alkaloids.

Since pharmaceutical chemistry is a division of applied chemistry, it follows that the fundamental principles and knowledge used must be acquired through pre-requisite instruction. If this fundamental instruction is given a pharmaceutical slant (a very appropriate expression because the knowledge thus imparted is not made to penetrate but is only distorted), pharmaceutical chemistry must either be a repetition of much that has preceded, or it must be a smattering of disjoined subject matter left over from other courses. The desired end may best be obtained, in my opinion, when the pre-requisite instruction is given by adequately prepared chemists who teach the fundamentals of chemical science, and when the pharmaceutical chemistry is taught by chemists with a broad pharmaceutical education.

Pharmaceutical chemistry may be defined easily in broad terms, but it is difficult, if not impossible to draw a sharp line of demarcation between it and non-pharmaceutical chemistry. Certain standards are available, however, for guidance. Thus the materials described in the United States Pharmacopœia, in the National Formulary and in New and Non-Official Remedies, are obviously basic and appropriate subject matters to be considered in courses of instruction. Other materials not included in these standards might also be studied, but their selection should be based on importance and extent of use. The occurrence, method of production, purification, properties, characteristic reactions, tests for identity and purity and assay of each class of materials should be covered. The emphasis given to any phase of instruction must necessarily be determined by the individual teacher. The formulation of any definite course content must be based upon and correlated with pre-requisite courses.

The pressing question which confronts us is not how to define the scope of pharmaceutical chemistry but how to present the subject matter with a reasonable degree of completeness in any given curriculum. The subdivision of chemistry

into courses having a limited and definite objective has, I believe, been proven wise by extensive experience. Following this precedent, we might give courses in inorganic, qualitative, organic, quantitative and physical pharmaceutical chemistry. If we consider, however, that general inorganic and organic chemistry, and qualitative and quantitative analysis should be given as pre-requisite instruction and that courses in physical chemistry, physiological chemistry and food analysis are important for pharmacy students, it becomes apparent that a compromise founded on rational practical needs in arranging curricula must be accepted. The difficulties may be partly overcome when, if ever, the facilities of our pharmacy schools offer opportunity for students to major in certain fields such as pharmaceutical chemistry, pharmacy, pharmacognosy or pharmacology.

In arriving at a compromise between what should be given as pre-requisite instruction in pure chemistry and what should be given in pharmaceutical chemistry, it is of paramount importance that a singleness of purpose be maintained rather than to include a variety of subject matter in any definite course. A blanket course in pharmaceutical chemistry covering all phases of instruction might conceivably be made to cover the entire scope of the subject matter, but such an arrangement lends itself to poorly organized, objectiveless teaching. It is advisable, consequently, to subdivide the scope of pharmaceutical chemistry for purposes of teaching.

The partitioning of pharmaceutical chemistry into courses can best be made along conventional lines and without great difficulty, and these courses can be correlated with pre-requisite instruction. After this is done, however, it will be found that there is not room for so much chemistry in the pharmacy curriculum. It is best that general inorganic chemistry, qualitative analysis and organic chemistry be given as pre-requisites preferably as fundamental sciences and not as applied chemistry since they are generally well organized, credits for them are readily accepted for inter-college transfer, and the Council on Medical Education requires that credit in these courses be taken in other than professional schools by pre-medical students. Whether or not a general course in quantitative analysis should be required as a pre-requisite to quantitative pharmaceutical chemistry is a debatable question since all of the fundamental theory and analytical technique utilized in the procedures usually covered in such courses, and more, is found in our official standards.

It is not my intention to outline the course content here that should be covered in pharmaceutical chemistry, for that has been done in the tentative outline of the new Syllabus for courses in inorganic, organic and quantitative pharmaceutical chemistry and the outlines have already been made available to you for study. Certain pertinent observations may be made, however, advantageously. A course in pharmaceutical inorganic chemistry is essential to teach the methods of preparation and purification and to emphasize the properties of the particular inorganic chemicals used in pharmacy. Instruction in pharmaceutical organic chemistry is necessary to treat in an adequate manner of those materials of great pharmaceutical importance, which are considered lightly if at all in the general course, such as, alkaloids, volatile oils, enzymes, glucosides, glandular products, and synthetic compounds. A quantitative pharmaceutical chemistry course is needed to teach the fundamental principles of analysis used to establish the purity of pharmaceuti-

cals. If a pre-requisite course in quantitative analysis is given, it is doubtful whether all of the elementary procedures, such as those involved in acidimetry and alkalimetry, need be repeated in the applied course. It should be borne in mind, however, that the official assay methods frequently differ from and utilize a distinct technique not encountered in general analysis. Since practically all of the fundamental principles and practices considered in a general course are included in the official methods and since the student can as well study these principles and practices in the applied as in the general course, pre-requisite instruction in quantitative analysis might be omitted more advantageously than could inorganic, organic or qualitative work.

Applied instruction in qualitative inorganic and organic chemistry should preferably be given in a separate course. The limitations of time in the curriculum, in most cases, make it necessary, however, to give this work along with and as a part of courses in pharmaceutical inorganic and organic chemistry. The official tests for identity and purity may readily be so included.

It is obvious that the subject of "The Scope of Pharmaceutical Chemistry" has been treated in this paper from the viewpoint of course content and curricula formulation. The important subjects of physical and industrial chemistry in their pharmaceutical applications have not been taken up. The essentials of these subjects might be considered, in part at least, in other well-ordered courses. The scope of pharmaceutical chemistry in the curriculum of any given school must be dependent in a large measure upon the objective of the school. In those schools where the only objective is to train retail pharmacists, extensive, systematic courses in pharmaceutical chemistry may seem unimportant, although they are not in their ultimate effects upon the general status of pharmacy. When the purpose is to give a basic pharmaceutical education in preparation for the practice of pharmacy in any or all of its ramifications, the extent of and emphasis placed upon general as well as applied courses cannot be overstressed. In the attainment of the latter, it may be necessary to give some courses in graduate work for those who wish to specialize in order to cover the scope of pharmaceutical chemistry. Where the entire scope cannot be covered, it would be better to present even a single thorough course of instruction in one phase of the subject matter than to give a greatly diversified, all-inclusive course.

THE NATIONAL FORMULARY OF BELGIUM.

"For a considerable time a special committee of pharmacists and representatives of the medical profession have been engaged in the preparation of a new edition of the 'National Formulary,' and the work was so far advanced as to justify anticipation of early publication, but the advent of the second edition had to be postponed until the new edition of the Belgian Pharmacopœia was issued, in order that the Formulary may not clash in any respect with the official publication. Now that the Pharmacopœia has appeared, the Formulary Committee has published a list of 184 drugs and galenical and other preparations 'nominated' for the second edition of the Formulary, upon which observations are invited. The preparations include medicated waters, medicated cigarettes, granules and factitious mineral water powders."

The efforts of pharmacists should be encouraged to improve the professional atmosphere of the pharmacy and as far as possible give the store a distinctive appearance rather than copy other classes of stores.

THE DEPARTMENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

President, A. L. I. Winne, Richmond, Va. *Treasurer*, J. W. Gayle, Frankfort, Ky. *Chairman of Executive Committee*, H. M. Lerou, Norwich, Conn. *Secretary*, H. C. Christensen, 130 N. Wells St., Chicago, Ill.

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PRESIDENT WINNE APPOINTS COMMITTEES.

President A. L. I. Winne of the N. A. B. P. recently announced the appointment of the following committees to report at the next annual convention to be held in Toronto, Ontario, at the Royal York Hotel, August 22–23, 1932:

LEGISLATIVE COMMITTEE.

Chairman, R. L. Swain, Baltimore, Md.; J. W. Dargavel, Minneapolis, Minn.; M. J. Nicholson, Willcox, Ariz.

NATIONAL LEGISLATIVE COMMITTEE.

Chairman, James W. Wise, Dover, Del.; Geo. A. Bunting, Baltimore, Md., Roy B. Cook, Charleston, W. Va.

PHARMACY OWNERSHIP LAW COMMITTEE.

Chairman, Geo. W. Mather, Albany, N. Y.; C. C. Campbell, Pittsburgh, Pa.; F. L. Vilas, Pierre, S. Dak.

PREREQUISITE LEGISLATION COMMITTEE.

Chairman, Wm. R. Acheson, Cambridge, Mass.; A. L. Phelps, Phoenix, Ariz.; H. W. Reuter, St. Louis, Mo.; W. H. Duckworth, Clovis, N. Mex.; Frank R. French, Tilton, N. H.

PUBLICITY COMMITTEE.

Chairman, Fred D. Pierce, Barton, Vt.; R. P. Fischelis, Trenton, N. J.; G. V. Kradwell, Racine, Wis.; W. H. Cousins, Dallas, Tex.; R. W. Fleming, Reno, Nev.

NATIONAL CERTIFICATE COMMITTEE.

Chairman, H. C. Christensen, Chicago, Ill.; Linn E. Jones, Portland, Ore.; P. H. Costello, Cooperstown, N. D.; J. A. Riedel, Boulder, Mont.; E. E. Duryee, Oxford, Neb.; John E. Guess, Hammond, La.; E. Swetmann, Seward, Alaska; Carlos G. deQuevedo, Santurce, Porto Rico.

CONSTITUTION AND BY-LAWS COMMITTEE.

Chairman, F. H. King, Delphos, O.; W. H. Dayton, Salt Lake City, Utah; Wm. R. Fortin, Pawtucket, R. I.; F. W. Hancock, Oxford, N. C.; W. T. Edmunds, Augusta, Ga.; Jack P. Halliwell, Pocatello, Idaho.

GRIEVANCE COMMITTEE.

Chairman, H. G. Ruenzel, Milwaukee, Wis.; Charles S. Pierce, Springvale, Me.; F. A. Milne, Pratt, Kas.; Guy Norton, Tacoma, Wash.; R. C. Shultz, Worland, Wyo.

BANQUET COMMITTEE.

Chairman, W. M. Hankins, Daytona Beach, Fla.; S. A. Williams, Troy, Ala.; Duncan Weaver, Fennville, Mich.; R. B. Rothrock, Evansville, Ind.; Rowland Jones, Gettysburg, S. D.

DELEGATES.

National Conference on Pharmaceutical Research: Chairman, L. L. Walton, Williamsport, Pa.; W. M. Hankins, Daytona Beach, Fla.; R. L. Swain, Baltimore, Md.

House of Delegates, A. Ph. A.: L. L. Walton, Williamsport, Pa.; H. W. Reuter, St. Louis, Mo.; M. N. Ford, Columbus, Ohio. Alternates: J. B. Sand, Nashville, Tenn.; J. H. Frierson, Charleston, S. C.; C. M. Brewer, Oklahoma City, Okla.

Committee on Simplified Practice, U. S. Dept. of Commerce: A. C. Taylor, Washington, D. C.

National Drug Trade Conference: H. C. Christensen, Chicago, Ill.; Robert P. Fischelis, Trenton, N. J.; A. C. Taylor, Washington, D. C.; *Alternates:* R. L. Swain, Baltimore, Md.; W. T. Kerfoot, Washington, D. C.; H. C. Littlejohn, Leesburg, Va.

The following standing and elective committees are also serving throughout the year:

Executive Committee: Chairman, H. M. Lerou, Norwich, Conn.; John A. J. Funk, Galveston, Ind.; W. M. Hankins, Daytona Beach, Fla.; A. L. I. Winne (*president*) Richmond, Va.; H. C. Christensen (*secretary*), Chicago, Ill.; J. W. Gayle (*treasurer*), Frankfort, Ky.

Syllabus Committee: R. L. Swain, Baltimore, Md.; A. L. I. Winne, Richmond, Va.; Robert W. Sterling, Dixon, Ill.; John Culley, San Francisco, Calif.; M. N. Ford, Columbus, Ohio; Robert P. Fischelis, Trenton, N. J.; George Judisch, Ames, Ia.

Advisory Examination Committee: Chairman, H. C. Christensen, Chicago, Ill. and nine vice-presidents as follows: C. Thurston Gilbert, Noroton, Conn.; Robert P. Fischelis, Trenton, N. J.; Clare F. Allen, Wyandotte, Mich.; J. W. Slocum, Indianola, Ia.; W. L. Lyle, Richmond, Va.; Booker T. Latimer, DeWitt, Ark.; John K. Clemmer, Miami, Fla.; Joseph P. Murray, Denver, Colo.; Arthur Lee Phelps, Phoenix, Ariz.

Resolutions Committee: A. C. Taylor, Washington, D. C.; R. B. Rothrock, Evansville, Ind.; Rowland Jones, Gettysburg, S. Dak.; C. Thurston Gilbert, Noroton, Conn.; W. E. Bingham, Tuscaloosa, Ala.

Committee on Study of Pharmacy of American Council on Education (N. A. B. P. Representatives): L. L. Walton, Williamsport, Pa.; Augustus C. Taylor, Washington, D. C.; H. C. Christensen, Chicago, Ill.

DISTRICT NEWS.

Even during the pre-holiday rush, there has been considerable activity in district meeting plans, so this bespeaks a successful year for the districts. As usual, meetings will commence early in the New Year.

There has been some talk of a meeting in District No. 6 (Ark., Kas., Mo., Tex. and Okla.) early in the year, perhaps in Oklahoma City, Okla.

District No. 2 has already announced its meeting, which is to be held at the Pennsylvania Hotel, New York City, on March 14th and 15th. The Chairman and committees are busily at work on the program.

Two meetings are being planned for April—District No. 3 (Wis., Mich., Ill., Ind., Ohio and Ky.) at either Milwaukee, Wis. or Cleveland, Ohio—two invitations having been received, the choice of place and date to be made soon. The chairman is consulting the boards as to their preferences. Then too, District No. 7 (Fla., Ga., Ala., Miss. and La.) is planning a meeting in New Orleans some time in April—with John Clemmer stirring up the pep, this should be an event.

Plans for meetings are also being made in Districts No. 1 and 4 but are not ready for announcement as yet.

JOHN W. DARGAVEL HONORED AT DINNER.

A testimonial dinner was tendered to John W. Dargavel (secretary Minnesota Board of Pharmacy) by the Minneapolis Retail Druggists' Association on December 4, 1931 at the Hotel

Radisson, in recognition of his elevation to the presidency of the National Association of Retail Druggists. It is said that he is the youngest man in pharmacy ever to hold the office of national president.

Over 400 retailers attended the dinner. Among the speakers were Julius H. Riemenschneider, past-president of the N. A. R. D., of Chicago; H. C. Christensen, past president of the A. PH. A. and secretary of the N. A. B. P., also of Chicago; Dean Frederick J. Wulling of the University of Minnesota; Miss Marie A. Piesinger, former member of the Minnesota Board; Frank Moudry, a college classmate of Mr. Dargavel; and Jos. Vadheim, president of the Minnesota State Association and John Heerema, president of the Iowa Pharmaceutical Association.

A chest of silver was presented to President Dargavel by his Minnesota friends and he responded with a most excellent and fitting speech of thanks, mentioning the wonderful coöperation he had received and acknowledging his debt to them. Letters of congratulation had been received from all parts of the country, many of them from N. A. B. P. friends.—H. C. C.

Congratulations to Rowland Jones, the youthful secretary of the South Dakota Board of Pharmacy, who has the distinction of being elected *First Vice-President* of the AMERICAN PHARMACEUTICAL ASSOCIATION—undoubtedly the youngest A. PH. A. vice-president on record.

John Culley, a former president of the N. A. B. P. and for many years a member of the Utah Board of Pharmacy, has been made secretary of the Bay District pharmaceutical associations in San Francisco to succeed W. Bruce Philip who has established an office in Washington, D. C., as attorney for the N. A. R. D. and who is also the president-elect of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The Bay District associations are to be complimented on their wise choice in selecting John Culley as secretary. He has had many years of experience in association work and is well known in pharmacy circles throughout the country. His new office is at 503 Sheldon Bldg., San Francisco, Calif.

An interesting sidelight is the fact that John Culley is one of the signers of the N. A. B. P. incorporation papers and originated the district idea while he was president.

OBITUARIES.

ADDISON DIMMITT—KENTUCKY.

Kentucky has lost one of her leading pharmacists in the death of Addison Dimmitt, who passed away on Nov. 13, 1931 after an illness of three weeks. He was president of the Newman Drug Co. of Louisville, a partner in the Newman Pharmacal Co., treasurer of the Goodwin Laboratories, and also a director of the Morris Plan Industrial Bank at the time of his death.

Mr. Dimmitt was one of the pioneers in the work of the N. A. B. P., having been an active member while serving on the Kentucky Board of Pharmacy from 1911 to 1915 and from 1917 to 1921. He is survived by a wife and son, to whom our deepest sympathy is expressed in their great loss.

T. V. CAMPBELL—KANSAS.

Thomas V. Campbell, treasurer of the Kansas Board of Pharmacy, died at his home in Topeka, on November 23, 1931 of heart disease.

Mr. Campbell was appointed to the Kansas Board by Governor Clyde Reed in 1930 and had won the admiration and respect of his board colleagues during his short term of board service. He was an outstanding example of an ethical druggist and had a sign in his store announcing "We sell patent medicines but we do not recommend them," which brought him considerable national publicity, although that was not his purpose.

GROVER C. BOND—ILLINOIS.

Grover C. Bond of Mount Vernon, Ill., a member of the Illinois Board of Pharmacy, died on November 21, 1931—very suddenly.

Although appointed only in 1929, he immediately took an interest in national affairs and had attended a District No. 3 meeting in Detroit, also the national convention at Miami. He was of a happy, fun-loving disposition, as those who met him will remember, yet very earnest and serious in the fulfilment of his board responsibilities and duties. The Illinois Board has lost a very valuable member. The N. A. B. P. extends sincere condolences to Mrs. Bond in her bereavement.

STATE BOARD NEWS.

Kansas.—Joseph D. Paradowsky of Kansas City was appointed a member of the Kansas Board of Pharmacy by the Governor on Saturday, December 19, 1931 to fill the vacancy caused by the death of T. V. Campbell of Topeka. Mr. Paradowsky was also elected president of the Retail Druggists Association of Greater Kansas City on Nov. 20, 1931. He is a graduate of the Kansas City College of Pharmacy and has been a very successful pharmacist for many years on the Kansas side, also being quite active in the Association of Greater Kansas City in recent years.

Out of a class of thirty-seven who took the examination for registered pharmacist in Lawrence, Kansas, on November 18th–19th, eighteen were successful—passing percentage 48+. (There are still non-graduates taking examination under the exemption.)

Kentucky.—A welcome is extended to Albert E. Ely of Glasgow and Linwood A. Brown of Lexington, both honorary N. A. B. P. members, who have recently been reappointed to the Kentucky Board of Pharmacy, succeeding George E. Porter and R. Lee Cassell, retired. At the re-organization meeting, George D. Duncan of Franklin was elected *President*, George Wilhelmi of Newport, *Treasurer*, and J. W. Gayle of Frankfort, *Secretary*.

The report of the October examination shows four out of a class of eleven candidates as successful—passing percentage 36+. The January meeting was held at the Brown Hotel, Louisville, on the 12th and will be reported later.

Maine.—Charles S. Pierce, president of the Maine Board of Pharmacy, has been reappointed by Gov. Gardiner for a term of three years dating from December 1st. Mr. Pierce has been very active in the N. A. B. P. on committee work, and the reappointment is very gratifying as it is a recognition of his splendid service.

Michigan.—Clare F. Allan, N. A. B. P. vice-president and Chairman of District No. 3, was elected *President* of the Michigan Board at the annual meeting held in Lansing on December 30th. Howard Hurd of Flint was named *Vice-President*. The retiring member of the Board is Orville Hoxie of Grand Rapids and a new member will be appointed by the Governor some time in January.

Clare F. Allan is chairman of the program committee of the Wyandotte Kiwanis Club for the second all-city banquet at which prominent state officials are to be guests on January 19th. The Secretary of State, Frank D. Fitzgerald, and State Treasurer, Howard C. Lawrence, will be among the guests of honor.

New Mexico.—W. H. Duckworth of Clovis has been appointed secretary and treasurer of the New Mexico Board of Pharmacy to succeed C. C. Haussamen, resigned, but who retains his membership on the board. A hearty welcome is extended to Mr. Duckworth who has been an honorary N. A. B. P. member since 1920 and now again becomes active by this appointment.

Ohio.—A class of 71 applicants was examined at the October meeting of the Board, 52 being successful in getting licenses. Passing percentage 72+ (practically all graduates in examination).

The highest grade was made by Charles S. Ehlers of Cincinnati with a general average of 98%, next Paul F. Schindler of Coldwater with 93% and third Chester A. Gregory of Cincinnati with 90.1%.

Porto Rico.—The central office was honored by a personal call from Mr. Ramon Lopez Irizarry of the Porto Rico Board of Pharmacy early this month. Mr. Irizarry is the youngest and newest member of the Board, having been appointed over a year ago. However, he is very active, having prepared a very commendable piece of pharmacy legislation which was introduced at last year's session of the legislature but unfortunately failed. He reports that another attempt will be made this year in a somewhat different manner.

College graduation has been a compulsory requirement of the Porto Rico Board since 1921; the University of Porto Rico is a member of the A. A. C. P. and the four-year course will be the minimum offered in 1932. The changes sought in the law are a repeal of the section permitting diploma registration; also enactment of a one-year practical experience requirement. The present law contains no experience provision.

South Carolina.—Six new licenses were issued as a result of the November examinations—total number taking same being 10. Passing percentage 60. The next meeting is scheduled for Columbia, S. C., on the third Wednesday in March 1932.

BRIEF NEWS ITEMS FROM MEXICO.

BY DR. G. G. COLÍN.

PROFESSIONAL PHARMACY IN MEXICO.

ARTICLE IV of the Mexican Constitution has been the subject of debate for many years. Congress has taken up its discussion and regulation in order to establish definitely the rights of the professional man over those practicing without a degree. Concerning pharmacy, there are no limitations for its practice except that any one wishing to practice it must notify the Health Department. The government office will send an inspector to see if the new establishment meets the requirements of the Sanitary Code. The non-professional pharmacist, must state, both in labels and in a sign outside of the establishment, that he practices "without a title or degree." There are some 5000 pharmacies in Mexico of which a large number are conducted by non-professional men.

DRUG IMPORTS INTO MEXICO.

It is estimated that Mexico imports drugs from foreign markets to the figure of some $40,000,000.00 (Mexican pesos) yearly. This includes crude drugs, patent medicines, toilet preparations, chemicals, etc.

Pharmaceutical industry in the country is largely dependent on importation of raw materials or semi-finished products. Although many of the common raw materials are found in Mexico, no effort has been made to refine them for domestic use in the industry.

FOREIGN COMPETITION.

The idea that foreign medicinal products are better than home-made similars is still prevalent in Mexico. The Mexican medical profession shows a marked preference for European, French and German products. Several pharmaceutical manufacturers take advantage of such prejudice by giving their laboratories foreign names and labeling their products with names suggestive of foreign origin in order to compete with true foreign manufactures and with Mexican manufacturing pharmacists.

In order to counteract this competition, a group of Mexican manufacturers has organized a Syndicate called "Sindicate de Laboratorios Nacionales de Productos Farmaceuticos." The board of directors is composed of Dr. R. Trevino as President, Dr. G. G. Colin as Secretary and Mr. Manuel Grey as Treasurer. Only those firms operating with Mexican capital and investing their profits in the country can be admitted to membership.

PRODUCTION OF BIOLOGICALS.

The government budget for 1932 has been so reduced that the Mexican Health Department has found it necessary to commercialize its "Instituto de Higiene" where biologicals were formerly manufactured only for government use. This institution had been manufacturing biologicals valued at some $400,000.00 (Mexican pesos) yearly in the past.

Serums and vaccines now manufactured by the "Instituto de Higiene" are available for commercial use, physicians and pharmacists being invited to visit its laboratories and to prescribe and prefer them over imported similars.

CONANT TO RECEIVE CHANDLER AWARD.

The Chandler Medal for achievement in chemical science has been awarded for 1931 to James Bryant Conant, chairman of the Division of Chemistry, Harvard University, for research including work on free radicals, hemoglobin, reduction and oxidation of organic compounds, and quantitative studies of organic reactions. Dr. Charles F. Chandler in whose memory the Medal is named was for more than 50 years a member of the AMERICAN PHARMACEUTICAL ASSOCIATION.

COMMITTEE REPORTS

THE SECOND U. S. PHARMACOPŒIAL VITAMIN CONFERENCE.

BY E. FULLERTON COOK.

For many years the Committee of Revision has followed the policy of inviting into conference experts in special fields for their advice on standards and methods. Following this plan, an advisory committee on vitamin standards and assays was organized some time ago and a conference called last May.

The membership of this advisory committee includes about twenty-five of the leading workers in this field, within the United States, and also a number of foreign vitamin experts. The first meeting was held just prior to a similar conference, called by the Health Organization of the League of Nations in London on June 17, 1931. Doctors E. V. McCollum and H. Steenbock, who had been invited to attend the International Conference, were appointed to present the conclusions of our meeting at the London Conference. It was understood that, as soon as the conclusions reached at the London Conference were officially available, another meeting of the U. S. P. Advisory Committee would be called and an effort made to formulate standards and assay methods for immediate adoption in the U. S. P. X as an "interim revision." It was hoped, of course, that these standards could be in harmony with those recommended for international adoption.

The report of the London Conference was only recently made available and a second conference of the American members of our Advisory Committee was immediately called. The meeting was held on Friday, January 8, 1932, at the Hotel Pennsylvania and those present were: E. Fullerton Cook, Chairman of the U. S. P. XI Committee of Revision, presiding; John F. Anderson, of New Brunswick, N. J.; Charles E. Bills, of Evansville, Ind.; Archie Black, of New Brunswick, N. J.; R. A. Dutcher, of State College, Pa.; W. H. Eddy, of New York, N. Y.; A. D. Emmett, of Detroit, Mich.; George E. Ewe, of Cambridge, Mass.; M. S. Fine, of Battle Creek, Mich.; Mr. Goulden, of Newark, N. J.; Alfred Hess, of New York, N. Y.; Arthur D. Holmes, of Stoneham, Mass.; Charles W. Hooper, of New York, N. Y.; James H. Jones, of Philadelphia, Pa.; Robert L. Jones, of Detroit, Mich.; E. F. Kohman, of Washington, D. C.; Clifford S. Leonard, of Tuckahoe, N. Y.; Henry T. Mason, of Newark, N. J.; E. V. McCollum, of Baltimore, Md.; William J. Horn, of Bridgeport, Conn.; Lafayette B. Mendel, of New Haven, Conn.; A. Graeme Mitchell, of Cincinnati, Ohio; E. M. Nelson, of Washington, D. C.; Carl Nielsen, of North Chicago, Ill.; E. J. Quinn, of New York, N. Y.; H. W. Rhodehamel, of Indianapolis, Ind.; W. H. Sebrell, of Washington, D. C.; H. C. Sherman, of New York, N. Y.; Harry Steenbock, of Madison, Wisconsin; Julia B. Paton, of New York, N. Y.

The meeting was presided over by Chairman Cook, of the U. S. P. XI Committee of Revision, who had organized the Conference.

The London Conference had recommended the following:

The International Standard for Vitamin A.—"That carotene be accepted as an international provisional standard of reference for Vitamin A and that a selected sample of Cod Liver Oil be held in view as a possible secondary standard."

Definition of the Vitamin A Unit.—"The Unit of Vitamin A recommended for adoption is the Vitamin A activity of 1 γ (0.001 mg.) of the international standard."

The National Institute of Medical Research, in London, was requested to act as the central laboratory on behalf of the Health Organization of the League of Nations to undertake the final preparation of the sample of carotene to be used as the international standard for Vitamin A. Carotene is subject to deterioration unless carefully protected, and for that reason is not suitable for distribution. Therefore, it is proposed to determine the activity, expressed in international units, of a carefully selected Cod Liver Oil, and distribute that oil to laboratories as reference samples in standardizing Cod Liver Oil and related products for distribution and sale.

The International Standard for Vitamin D.—The International Conference also recommended, "that the standard solution of irradiated ergosterol at present issued by the National Institute of Medical Research, London, be adopted as international Vitamin D standard."

Definition of the Vitamin D Unit.—"The unit of Vitamin D recommended for adoption is defined as the Vitamin D activity of 1 mg. of the international standard solution of irradiated ergosterol."

The official report from London states that "the international standard at present recommended shall be regarded as provisional for the next two years, a more stable crystalline substance may in the meanwhile become available."

The International Standard for Vitamin B_1.—The Conference recommended "the adoption, as international standard, of the adsorption product of the anti-neuritic Vitamin B prepared in the Medical Laboratory, Batavia (Java), by the method of Seidell, as described by Jansen and Donath."

Definition of the Vitamin B_1 Unit.—"The unit recommended for adoption is the anti-neuritic activity of 10 mg. of the international standard adsorption product."

"NOTE: A daily dose of 10 to 20 mg. of this preparation is required to maintain normal growth in a young rat on a diet deficient in the antineuritic Vitamin but complete in all other respects, including the antidermatitis Vitamin (B_2); the curative 'day dose' for a pigeon (300 Gm. weight) suffering from polyneuritis on a diet of polished rice is about 20 to 30 mg."

The International Standard for Vitamin C.—The Conference recommends the adoption as international standard for the antiscorbutic Vitamin C, of the fresh juice of the lemon, *Citrus limonum*.

Definition of the Vitamin C Unit.—The unit of the antiscorbutic Vitamin C recommended for adoption is the Vitamin C activity of 0.1 cc. of fresh juice of the lemon, *Citrus limonum*.

The official report of the London Conference on Vitamins, as issued by the League of Nations, is available through the "Publication Department" with its United States agency at 40 Mt. Vernon Street, Boston 9, Massachusetts. The full report gives many additional details.

One of the first decisions at the London Conference was the agreement not to discuss or propose any detailed biological assay method for determining the exact Vitamin activity of the various products. It was believed that by the establishment of international standards and international unit values any approved biological method might be employed if in the hands of experienced operators and if the substance to be tested and the standard preparation were simultaneously assayed by the same method. This conclusion, reached by the London Conference, was not considered suitable for adoption by the Pharmacopœia. The U. S. P. standards are subject to enforcement under the Food and Drugs Act and it becomes necessary to establish an official method. The manufacturer will then know that his products will be evaluated by the same method by which they were standardized. This need was recognized by the New York Conference, and, after the consideration of the standards and units for Vitamins A and D, the detailed methods were studied.

Standards and Units for Vitamins A and D.—The New York Conference recommended the adoption by the U. S. P. Committee of Revision of the International standards and units for Vitamins A and D. It is expected that the Food and Drug Administration, Department of Agriculture, Washington, D. C., will distribute reference samples of Cod Liver Oil having a known value in relation to the international Vitamin A standard and also a standard irradiated ergosterol of known international Vitamin D unit value. It is yet to be determined whether this service can be rendered by the Food and Drug Administration, but their present efficient coöperation with the Pharmacopœia, in the distribution of standards for other official biological assays, points to this Governmental Bureau as the natural distributing organization for Vitamin standards.

Proposed U. S. P. X Methods of Biological Assay for Vitamins A and D.—The Conference considered the several methods of assay which had been proposed and, with slight modifications, recommend those offered by the Vitamin Committee of the American Drug Manufacturers' Association. These modified methods will soon be made available.

New U. S. P. X Cod Liver Oil Standards.—The standards and unit values and also the assay methods, approved by the New York Conference will promptly be submitted to the U. S. P. General Committee of Revision for their consideration. If accepted, these will be announced as the new standards for Cod Liver Oil, under the regulations of the U. S. P. X, and a reasonable time will be allowed to lapse before the new standards are enforced as the official requirements. These new standards will constitute an "interim revision" of the U. S. P.

Vitamins B_1 and C.—The New York Conference recognized that at the present time the Pharmacopœia is not required to adopt standards or assay methods for Vitamin B_1 and Vitamin C since no products containing these Vitamins are official. However, since so large a group were in conference, and as they represented many who are interested in Vitamin Standards within the United States, it was thought desirable that this Conference should also express its opinion concerning the international standards proposed for Vitamins B and C. The Conference thereupon voted its approval of the standards adopted by the International Vitamin Conference, at London, for these additional Vitamins.

FOOD AND DRUG UNIT APPROVES TOLERANCE AND ANALYSIS RULES.

Recommendations governing tolerances and analyses of certain drugs, and specifying that ampuls, or containers of drugs must carry a slight excess, but not a large one, over the amount stated on the label, have been approved by the Federal Food and Drug Administration and copies distributed to the trade according to an oral statement January 12th by Dr. F. J. Cullen of the Drug Control Unit of the Administration.

"The recommendations," he said, "were formulated by the combined contact committee of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association in coöperation with the Drug Control Unit. They cover some of the more commonly used drugs, such as quinine, and some of the more powerful drugs always administered by a physician," he said. The following additional information was made available:

The recommendations cover methods of analysis or assay of quinine hydrochloride, commonly used to combat colds and malaria; sodium salicylate and iodide with colchicine, used in treatment of rheumatism and gout to relieve pain, procaine hydrochloride, used as a local anæsthetic for minor operations and by dentists; a glycerophosphates compound, used as a general tonic; strychnine, used as a heart stimulant in serious cases, as in operations or severe pneumonia cases; calcium chloride, used preceding operations to obtain increased blood coagulation, and sodium nitrite, used in cases of kidney disorder and high blood pressure.

The recommendations specify that ampuls are considered as containers of medicine and not as measures of the dose, but they recognize that physicians frequently use the containers as measures. They therefore specify limits by which an ampul may contain an excess or deficiency of the drug above or below the amount stated on the label. Since it is impossible to withdraw from the ampul with a syringe all the drug it contains for injection into a patient, the recommendations state that it is necessary that an ampul should contain certain percentages, varying with different drugs, above the stated contents.

COMMITTEE EXPLAINS DECISION.

The Committee's explanation of its report and the reasons for its decisions follow in full text:

The Committee's report on the volume of contents of ampuls is based upon extensive experimental data designed to determine the volumes of different types of liquids which any specified ampul should contain to permit the physician to withdraw and administer to his patient the indicated dose.

While the Committee regards the ampul as a container of medicine, not as a measure of the dose, it recognizes that among physicians there is not always this definite understanding. It is accordingly undesirable to place in an ampul an indefinite excess over the intended dose of a drug. Moreover, it has been customary to designate ampuls by the volume of the intended dose to be taken from them as "1 cc.," "5 cc.," etc. Such labeling on ampuls containing materially more than the indicated volume would conflict with the provisions of the Federal Food and Drugs Act.

On the other hand it is obviously impossible to withdraw from an ampul into a syringe and to administer to a patient the entire contents of an ampul. It is therefore necessary to provide a slight excess of the medication in the ampul.

The amount of this excess in the case of viscous liquids is greater than in the case of more limpid drugs. As typical of these classes the Committee used in its experiments camphor in oil, sodium, cacodylate solution, ovarian extract, and quinine and urea hydrochloride solution.

The Committee has recommended that ampuls be designated as "1-cc. size," "2-cc. size," "3-cc. size," etc., and, based upon a large amount of data which have been submitted to the Food and Drug Administration in detail, that in order to permit the administration of the dose as indicated by the "size" mentioned an excess of the medicament be filled into the ampul in accordance with the following table:

Ampul size, A; Excess recommended, limpid solutions, B; Viscous solutions, C:

A.	B.	C.
0.5 cc.	0.1 cc.	0.12 cc.
1 cc.	0.1 cc.	0.15 cc.
2 cc.	0.15 cc.	0.25 cc.
3 cc.	0.25 cc.	0.4 cc.
4. cc.	0.25 cc.	0.4 cc.
5 cc.	0.3 cc.	0.5 cc.
10 cc.	0.5 cc.	0.7 cc.
20 cc.	0.6 cc.	0.9 cc.
50 cc.	1.0 cc.	1.5 cc.
100 cc.	2.0 cc.	3.0 cc.

In the case of ampuls of sizes other than those specifically mentioned commensurate excess of solution in such ampuls is recommended.

It is the opinion of the Solicitor of the Department of Agriculture that such designations upon ampul lables as "1-cc. size," will not violate the spirit of the Federal Foods and Drugs Act if the volume of content of the ampul exceeds the indicated volume by only a sufficient amount to insure the practicability of obtaining and administering the stated volume by means of a syringe. The Fool and Drug Administration will be guided by the Solicitor's opinion.

In connection with the enforcement of the Food and Drugs Act the Administration will give careful consideration to the recommendations embodied in this report.

MEMORIAL TO DAVID WALDIE.

In a daily newspaper, *The Englishman*, of May 1898, there is an article by William Mair, our honorary member, in which the centenary of chloroform, in prospect, is referred to. There seems to be no other claim for the first surgical use of chloroform than that of Sir James Y. Simpson, professor of Obstetrics, University of Edinburgh.

In his original pamphlet on the subject of chloroform he includes a footnote—"Talking over with different chemists what fluid might be sufficiently volatile to be respirable and hence desirable of being experimented upon, Mr. Waldie first named to me the perchloride formyle (chloroform), as worthy of a trial."

A bronze plaque "Chloroform Pharmacy" is set over the doorway of the old shop at Linlithgow, near Edinburgh in which the suggestion was made. Waldie's father was a surgeon apothecary in whose shop David Waldie made the suggestion to Dr. Simpson. Mr. Waldie had had some experience in the production of chloroform and on his being asked for his opinion by Dr. Simpson, David Waldie especially recommended that Dr. Simpson try chloroform.

There are various phases of history in connection with discoveries and in this instance the one who had recommended the use of chloroform rendered a part, however small, in a very great service.

DAVID WALDIE BRONZE.

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1931–1932.

Office of the Secretary, 10 West Chase Street, Baltimore, Md.

LETTER NO. 6.

December 23, 1931.

To the Members of the Council:

55. Contract for Printing and Mailing the Journal of the A. Ph. A. for 1932. Motion No. 15 (see Council Letter No. 5, page 1345) has been carried and the contract is awarded to the Mack Printing Co.

56. Increase in Budget Appropriations. Motion No. 16 (see Council Letter No. 5, page 1345) has been carried and the increases approved.

57. Expenses of N. F. Subcommittees. Motion No. 17 (see Council Letter No. 5, page 1346) has been carried and $350 or so much thereof as necessary, authorized for the expenses, during 1932, of the N. F. Subcommittee on Solution Preparations.

58. Election of Members. Motion No. 18 (see Council Letter No. 5, page 1346) has been carried and applicants numbered 43 to 92, inclusive, are declared elected.

59. Budget for 1932. The Committee on Finance, through its chairman, submits to the Council the following list of appropriations to cover the various expenditures of the ensuing fiscal year, in accordance with Article II of Chapter II of the By-Laws of the Council, partly based on estimates as to receipts and expenses from the secretary and suggestions from members of the committee, with the following comments:

> "Since the budget for 1931 was approved, $250 was appropriated for the Committee on Pharmacy Week and the ASSOCIATION also advanced about $175 additional which will be credited to our appropriation for 1932, and $250 was appropriated for Pharmacy Week Window Strips which cost $302.50. Recently, the appropriation for office supplies was increased by $100 and that for traveling expenses by $250.
>
> "The only appropriation exceeded was that for the YEAR BOOK, due to the issuance of two volumes—16 and 17—in one binding. However, the double number brings the publication more nearly up to date and the increase in cost could be absorbed.
>
> "Receipts from dues to December first were in excess of those for the same period in 1930, and it is expected that the increase will be maintained for December. Indications are that other receipts will compare favorably with the estimates for the year and that, with all bills paid, the fiscal year will close with a balance.

APPROPRIATIONS FOR GENERAL EXPENSES.

No. 1	Salaries	$11,700.00
No. 2	Rent	1,020.00
No. 3	Telegraph and Telephone	200.00
No. 4	Clerical Expenses	1,600.00
No. 5	Printing, Postage and Stationery	1,500.00
No. 6	Office Supplies	200.00
No. 7	Traveling Expenses	1,300.00
No. 8	Premium on Bonds	50.00
No. 9	Auditing	75.00
No. 10	Certificates	50.00
No. 11	Miscellaneous Expenses	150.00
No. 12	Scientific Section	25.00
No. 13	Section on Education and Legislation	25.00

No. 14	Section on Practical Pharmacy and Dispensing	25.00	
No. 15	Section on Commercial Interests	25.00	
No. 16	Section on Historical Pharmacy	25.00	
No. 17	Commission on Proprietary Medicines	25.00	
No. 18	Committee on Local Branches	25.00	
No. 19	Committee on Membership	900.00	
No. 20	Committee on State and National Legislation	50.00	
No. 21	Committee on Syllabus	50.00	
No. 22	Committee on Unofficial Standards	50.00	
No. 23	Committee on Pharmacy Week	250.00	
No. 24	Drug Trade Bureau of Public Information	400.00	
No. 25	International Pharmaceutical Federation	120.00	
No. 26	Metric Association	10.00	
No. 27	American Conference on Hospital Service	25.00	
No. 28	Headquarters Building Campaign	2,000.00	
No. 29	YEAR BOOK	4,500.00	
No. 30	Library	100.00	$26,475.00

APPROPRIATIONS FOR OPEN ACCOUNTS.

No. 31	JOURNAL:			
	(*a*) Publication	$9500.00		
	(*b*) Clerical Expenses	1000.00		
	(*c*) Postage and Stationery	300.00		
	(*d*) Freight, Drayage and Miscell	200.00	11,000.00	
No. 32	National Formulary		1,000.00	
No. 33	Recipe Book		1,000.00	
No. 34	Badges and Bars		50.00	13,050.00
				$39,525.00

"The principal changes in this budget are: $300 has been added to item No. 4 to cover the cost of stenographic service at the Toronto meeting and $200 to item No. 5 to cover additional cost of the program of that meeting; item No. 23 in the 1931 budget has been omitted as the expenses of that committee are otherwise financed, and this number given to the appropriation for the committee on Pharmacy Week so that it will be included in the regular budget. The minor changes are to bring the appropriations into conformity with the usual charges against them.

"The estimated receipts for the year will balance the appropriations in the 1932 budget as submitted, and the Committee repeats its statement of last year that the relationship between receipts and expenditures should have very careful consideration during the present stringent times."

(*Motion No. 19*) *It is moved by Bradley that the budget for 1932 be approved as submitted.*

60. Selection of Auditors. The Chairman of the Committee on Finance recommends the employment of W. A. Johnson & Company, Baltimore, Md., to audit the accounts of the ASSOCIATION for 1931, in accordance with Article 8 of Chapter IV of the By-Laws. This Company has audited the accounts since 1922.

(*Motion No. 20*) *It is moved by Bradley that W. A. Johnson & Co. be employed to audit the accounts of the Association for 1931 at the budget appropriation.*

61. University of Florida Student Branch, A. Ph. A. An application for the establishment of a Student Branch at the University of Florida has been received with the following comments:

"At a meeting held this afternoon in the Pharmacy Building the following officers were elected for this proposed Student Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION:

President	Katsch, James E.
Vice-President	Roth, Henry D.
Secretary	McLean, Andrew P.
Treasurer	Hunter, James H.

"Although we have only the minimum number of members at present, we assure you that this number shall be greatly increased in the near future.

"The Pharmacy students are showing a great deal of interest in this organization, and are receiving the whole-hearted coöperation of the faculty. Many of the men who were most active in this work were unable to have their names appear on this petition.

"If your committee sees fit to make this a Student Branch we promise you that it shall be an active one."

The students who signed the following application have submitted their applications for associate membership accompanied by the dues:

"We, students of the College of Pharmacy of the University of Florida, desire to establish a Student Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION at the University of Florida and hereby petition the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION to recognize us as such. The Constitution and By-Laws are herewith submitted for approval.

Bradley, Edwin L.	Coniglio, Frank L.
Henderson, Roscoe B.	Hunter, James H.
Hyatt, Robert F., Jr.	Johnson, Richard S.
Katsch, James E.	Lynch, Harold J.
McLean, Andrew P.	Mallory, Eschol M.
Sparks, Gerald C.	Resler, Richard E.
Roth, Henry D.	Thomas, John W.
Roberts, B. M.	

CONSTITUTION OF THE UNIVERSITY OF FLORIDA STUDENT BRANCH, A. PH. A.

Preamble.—We, the students of the College of Pharmacy of the University of Florida, in order to promote a better understanding of the ethics, study the problems (both commercial and educational) of our chosen profession, and instil a greater interest on the part of students of pharmacy in the workings and purpose of the AMERICAN PHARMACEUTICAL ASSOCIATION, that they may upon graduation and entrance into the profession be better fitted to uphold the traditions and further the work of this ASSOCIATION, do adopt this Constitution and By-Laws:

ARTICLE I. Name.—The name of this organization shall be the University of Florida Student Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION.

ARTICLE II. Purpose.—It shall be the purpose of this Branch to stimulate interest in the problems of pharmacy by means of discussion, talks or the presentation of papers by the members or others, and to provide social gatherings of pharmacy students.

ARTICLE III. Membership.—The members of this Branch shall be elected from among the bona fide students of the College of Pharmacy of the University of Florida who shall have met the requirements for associate membership in the AMERICAN PHARMACEUTICAL ASSOCIATION.

ARTICLE IV. Sec. 1. Officers.—The officers of this Branch shall be:

(*a*) A president.
(*b*) A vice-president.
(*c*) A secretary.
(*d*) A treasurer.

Sec. 2.—The duties of each officer shall be described in the By-Laws of the Branch.

ARTICLE V. Elections:

Sec. 1.—The officers of this Branch shall be elected annually.

Sec. 2. The election shall be by ballot and shall be held at the first regular meeting after the beginning of the second semester of the academic year.

Sec. 3. In the event any officer regularly elected shall not be registered in the College of Pharmacy in the semester following the one in which he was elected a special election shall be held for the purpose of choosing a member to finish the unexpired term of the said officer.

ARTICLE VI. Quorum.—One-half of the number of members of this Branch who are in regular attendance at the University during the period in which a meeting is held shall constitute a quorum.

ARTICLE VII. Amendments:

Sec. 1. This constitution shall be amended only upon vote of three-fourths of the members of this Branch who are in regular attendance at the University at the time the proposed amendment shall be submitted.

Sec. 2. This constitution shall be amended in no way that shall conflict with the policy of the A. PH. A. toward student branches.

BY-LAWS OF THE UNIVERSITY OF FLORIDA STUDENT BRANCH, A. PH. A.

1. Meetings. Meetings shall be held the second Wednesday evening of each month during the regular academic year. Special meetings may be called at any time by the president.

2. Order of Business. The order of business of each meeting shall be: *1.* Call to order. *2.* Approval of the minutes of the last meeting. *3.* Unfinished business. *4.* New Business. *5.* Program. *6.* Nominations and elections. *7.* Adjournment.

3. Duties of the Officers. a. The president shall preside over all meetings of this Branch, appoint all committees, present all bills or orders for disbursements of the funds of the Branch to the members and, upon being approved by a majority of those present, authorize the treasurer to make such disbursements.

b. The vice-president shall have and exercise all the duties of the president in case of his (the president's) absence; except that he shall not have the power to appoint the standing committees as described in Section 6 of these By-Laws.

c. The secretary shall keep the minutes of each meeting and see that each member shall have had a copy of the same available for his reading before the next regular meeting as provided in Section 4 of these By-Laws and shall prepare and forward to the secretary of the A. PH. A. reports of such meetings as are necessary as provided in the rules of the A. PH. A. concerning student branches. He shall also keep the records (except those of the treasurer) of the Branch, copies of all correspondence, a file containing the university and home addresses of each member and their academic classifications, and notify each member by mail of the time and place of all meetings of the Branch.

d. The treasurer shall keep a record of all the funds of the Branch and make a report of the financial status of the Branch at the last regular meeting of each semester, showing funds received, their source, funds disbursed, the purpose of the disbursements, and the balance on hand. He shall also make such remittances to the secretary of the A. PH. A. as are necessary upon the receipt of funds for dues of the members sending the proper blanks duly filled out as prescribed by the rules of the A. PH. A. He shall also present to the president all bills or orders for disbursements of the funds of the Branch as provided in part *a* of this section. He shall also issue receipts for all funds collected from the members or other sources and preserve duplicates or other suitable records of the same and obtain and preserve receipts for all funds disbursed.

4. The minutes of each meeting shall be prepared by the secretary and a copy circulated to the members. A list of the members shall be appended to each copy of the minutes with a space provided for signature. The signing of this list by the member shall be evidence of the fact that he has read the minutes. If there are omissions or errors the members shall note them and propose such additions or corrections as are necessary at the regular time for the approval of the minutes at the next meeting.

5. All the records of the Branch shall be available to any member at any time.

6. Standing Committees. Standing committees on membership and programs each consisting of three members shall be appointed at the first regular meeting of each semester. The membership committee shall investigate the qualifications of prospective members and report

their findings when called for by the president. The program committee shall have charge of all programs and shall furnish such material as may be necessary.

7. Records. The records mentioned in part *c* of Section 3 of these By-Laws shall include briefs or outlines of all discussions, papers, talks or other programs that are presented by members and if possible those presented by other speakers."

(*Motion No. 21*) *It is moved by Kelly that the application for the formation of the University of Florida Student Branch of the American Pharmaceutical Association and the Constitution and By-Laws of the Branch be approved.*

62. Applicants for Membership. The following applications properly endorsed and accompanied by the first year's dues have been received:

No. 93, Vladimer Bartulic, Jelacicev trg 20, Zagreb, Jugoslavia; No. 94, E. L. Bradley, 1708 W. University Ave., Gainesville, Fla. (Assoc.); No. 95, Morris Bousel, 3156 Perry Ave., New York, N. Y.; No. 96, Nicholas Byron, 507 Summit Ave., Jersey City, N. J.; No. 97, Frank L. Coniglio, 2090 W. University Ave., Gainesville, Fla. (Assoc.); No. 98, J. Bernard Edmonds, 3816 Greenmount Ave., Baltimore, Md.; No. 99, Balthasar Fries, 3024 Temple Ave., Westwood, Cincinnati, O.; No. 100, John Hall Gardner, Department of Chemistry, Washington University, St. Louis, Mo.; No. 101, David C. Gordon, Ryan & Pujo, Lake Charles, La.; No. 102, Sam P. Harben, Richardson, Texas; No. 103, Roscoe B. Henderson, Box 2007, Univ. Station, Gainesville, Fla. (Assoc.); No. 104, James H. Hunter, 1353 W. University Ave., Gainesville, Fla. (Assoc.); No. 105, Robert F. Hyatt, Jr., 136 N. Palmetto St., Gainesville, Fla. (Assoc.); No. 106, Richard S. Johnson, 433 N. Garden St., Gainesville, Fla. (Assoc.); No. 107, William Kandiner, 2585 Grand Concourse, Bronx, New York, N. Y.; No. 108, James E. Katsch, Phi Kappa Tau House, Gainesville, Fla. (Assoc.); No. 109, Harold J. Lynch, c/o College of Pharmacy, U. of Fla., Gainesville, Fla. (Assoc.); No. 110, Andrew P. McLean, Box 2148, University Station, Gainesville, Fla. (Assoc.); No. 111, E. M. Mallory, 1353 Union St., Gainesville, Fla. (Assoc.); No. 112, Alice Noble, P. O. Box 631, Chapel Hill, N. C.; No. 113, T. D. Perkins, 820 W. Washington St., San Diego, Calif.; No. 114, George E. Radcliffe, High & 2nd Sts., Hamilton, Ohio; No. 115, John B. Ray, Box 57, Abilene, Texas; No. 116, R. E. Resler, Jr., 1786 West Church St., Gainesville, Fla. (Assoc.); No. 117, B. M. Roberts, Florida Hall, Gainesville, Fla. (Assoc.); No. 118, H. Dale Roth, 1133 Alabama St., Gainesville, Fla. (Assoc.); No. 119, Philip Albert Schwarz, 231 West McMillan St., Cincinnati, O.; No. 120, J. M. Sisson, 166 Summer St., Boston, Mass.; No. 121, G. C. Sparks, Jr., 135 DeSota St., Gainesville, Fla. (Assoc.); No. 122, John W. Thomas, High Springs, Fla. (Assoc.); No. 123, Herman Schuler, 702 Pike St., Covington, Ky.; No. 124, Edward Everett Stacy, Tuscola, Ill.; No. 125, L. Parker VanHorn, 4330 S. Arlington, Los Angeles, Calif.; No. 126, R. J. Vezina, 809 Liberty St., Springfield, Mass.; No. 127, Ernest F. Pinner, 330 West 42nd St., New York, N. Y.; No. 128, Athol L. Waggoner, 215 Metropolitan Bldg., St. Louis, Mo.; No. 129, John C. Walton, 838 North 24th St., Philadelphia, Pa.; No. 130, Paul V. Weismiller, 606 Ferndale Ave., Johnstown, Pa.

(*Motion No. 22*) *Vote on applications for membership in the American Pharmaceutical Association.*

E. F. KELLY, *Secretary.*

LETTER NO. 7.

January 14, 1932.

To the Members of the Council:

63. Budget for 1932. Motion No. 19 (see Council Letter No. 6) has been carried and the budget approved as submitted.

64. Selection of Auditors. Motion No. 20 (see Council Letter No. 6) has been carried and W. A. Johnson & Co. will audit the accounts for 1931.

65. University of Florida Student Branch, A. Ph. A. Motion No. 21 (see Council Letter No. 6) has been carried and the formation of the Branch and its Constitution and By-Laws are approved.

66. Election of Members. Motion No. 22 (see Council Letter No. 6) has been carried and applicants numbered 93 to 130 are declared elected.

67. Life Members. Messrs. Miers Busch, George D. Rosengarten and Freeman P. Stroup have become Life Members through the payment of $25.00 each.

68. Life Members. Messrs. Wilhelm Bodemann, Theodore J. Bradley, Edward A. Hay and Henry K. Mulford have become Life Members through the payment of dues for thirty-seven years.

69. University of Wisconsin Student Branch, A. Ph. A. The students whose names are signed to the following petition have submitted their applications for associate membership accompanied by the dues:

The undersigned students of the Course in Pharmacy of the University of Wisconsin desire to establish a Student Branch at the University and petition the Council of the ASSOCIATION to approve the formation of the Branch and its Preamble and By-Laws as submitted herewith.

Benjamin Alk	Orie E. Greenstein	Raymond Reiter
Franklyn H. Bergmann	Harvey A. Kimball	Michael Santelli
Vilas A. Bohlman	Raymond Kleinheinz	Gordon Schmidt
Elmer Bohn	Raymond Knier	Frank G. Scobie
Gerald E. Burke	Earl Lawson	Sister Mary Francis Xavier
Samuel A. Checkick	Arthur Mehl	Arne E. Stensby
Aspen A. Ede	Harold W. Munroe	Gordon A. Stuelke
Harold F. Eppson	Edward M. Nicgorski	A. G. Sturgeon
Allen Fink	Edward R. Nesman	Archie Taylor
Norman Gessert	A. J. Niebauer	Vincent Wasz
Norman Glanders	Lionel A. Olson	Milton Wruble

The petition is also endorsed by the following active members of the ASSOCIATION: Katherine Graham, Minnie M. Meyer, Clarence W. Sondern, Ralph W. Clark and Edward J. Ireland.

PREAMBLE AND BY-LAWS.

In order to stimulate a greater professional and scientific interest in the students at the University and the druggists in the City of Madison, and vicinities, we the undersigned, do hereby resolve to constitute ourselves into a student branch of the AMERICAN PHARMACEUTICAL ASSOCIATION for the purpose of advancing the objects for which the body was founded. The branch hereby adopts for its guidance the Constitution and By-Laws of the AMERICAN PHARMACEUTICAL ASSOCIATION, and its members hereby subscribe to them.

Article I—Members. This branch shall consist of active and associate members.

Article II—Active Members. All members of the University of Wisconsin Student Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION shall be members regularly enrolled in Pharmacy in the State University of Wisconsin, on signifying their intention of adhering to the provisions enumerated in the preamble and in the constitution of the AMERICAN PHARMACEUTICAL ASSOCIATION, shall be elected to active membership of this branch.

Article III—Associate Members. Any person who is not an active member, but who manifests his interest either by contribution or active participation of work or research, scientific papers, or add to its financial resources, shall be termed an associate member but without the right to vote.

Article IV—Officers. The officers of the Branch shall be a president, vice-president, secretary, and a treasurer.

Article V—Committees. At the first January meeting of each fiscal year or as soon thereafter as possible, the President shall appoint three standing committees as follows: A Committee on Program, to consist of three members; a Committee on Student Activities, to consist of three members; and a Committee on Membership to consist of three members.

Article VI—Executive Committee. The officers of the branch and the chairmen of the Standing Committees shall constitute the Executive Committee, to transact all the necessary business usually transacted by such a committee.

Article VII—Meetings. The meetings of the branch shall be held at least once a month and as many more times as might seem advisable from the opening date of school each year to the close. Date of the meeting to be selected by the officers of the branch.

Article VIII—Quorum. Seven members shall constitute a quorum.

Article IX—Fiscal Year. The fiscal year of the branch shall be from the first of January until the first day of January of the following year.

Article X—Elections. The officers shall be elected by ballot by a majority, at the last meeting held in December and shall be installed at the first meeting held in January, and shall serve for one year or until their successors have been elected. Nominations for officers shall be made at a meeting previous to the meeting at which the election is held.

Article XI—Presiding Officers. In the absence of the president, the next succeeding officer shall take the chair.

Article XII—Secretary. The secretary shall keep fair and correct minutes of the proceedings of the meetings and send reports of the same to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION as often as is required, and to such journals and newspapers as he may deem proper. He shall preserve on file, all reports and papers of every description presented to the branch, and shall be charged with the necessary business and scientific correspondence. He shall read all papers handed to him by the president for the purpose, shall call and record ayes and nays, whenever they are required to be called; shall notify the chairman of every standing and special committee of his appointment, giving him a list of his colleagues and stating the business upon which the committee is to act. He shall notify every member at least one week in advance of the time and place of the meeting.

Article XIII—Treasurer. The treasurer shall collect and take charge of the funds of the branch and shall give receipts for the same. He shall pay no money except upon order of the secretary countersigned by the president and accompanied by the proper vouchers. He shall present a statement of conditions at each December meeting of the branch. He shall receive the amount of his expenses incident to the duties of his office.

Article XIV—Order of Business. (1) Reading of the minutes of the previous stated meeting; (2) Introduction of newly elected members; (3) Unfinished or deferred business; (4) New Business; (5) Program; (6) Nominations and elections; (7) Adjournment.

Article XV—Miscellaneous. Every proposition to alter and amend these by-laws shall be submitted in writing at a stated meeting of the branch, and may be balloted for at any subsequent stated meeting, when upon receiving the votes of three-fourths of the members present, it shall become a part of the by-laws.

Article XVI—Rules of Order. On all points not specifically mentioned in the by-laws governing this section, the by-laws of the AMERICAN PHARMACEUTICAL ASSOCIATION shall take precedence over the other decisions on parliamentary rule.

(*Motion No. 23*) *It is moved by Kelly that the formation of the University of Wisconsin Student Branch of the A. Ph. A. and the Preamble and By-Laws of the Branch, as submitted, be approved.*

70. Applicants for Membership. The following applications properly endorsed and accompanied by the first year's dues have been received:

No. 131, J. Walter Aderholt, Big Spring, Texas; No. 132, Benjamin Alk, 1140 Cherry St., Green Bay, Wis. (Assoc.); No. 133, Moses Baumann, 8320 Parson's Blvd., Jamaica, N. Y.; No. 134, Franklyn H. Bergmann, 408 N. Francis St., Madison, Wis. (Assoc.); No. 135, V. A. Bohlman, 6 S. Orchard St., Madison, Wis. (Assoc.); No. 136, Elmer Bohn, 116 N. Orchard St., Madison, Wis. (Assoc.); No. 137, Melchoir Raymond Brenner, 126 North 32nd St., Camden, N. J.; No. 138, Gerald E. Burke, Casco, Wis. (Assoc.); No. 139, Samuel A. Checkick, 121 S. Hamilton St., Madison, Wis. (Assoc.); No. 140, Robert A. Dexter, Main St., Box 204, Camden, Me.; No. 141, Aspen A. Ede, 204 N. Murray St., Madison, Wis. (Assoc.); No. 142, Jacob Eisen, 457 Clinton Ave., Newark, N. J.; No. 143, Harold F. Eppson, Agricultural Experimental Station, Laramie, Wyo. (Assoc.); No. 144, Allen Fink, Alma, Wis. (Assoc.); No. 145, John M. Forbes, 393 Myrtle Ave., Albany, N. Y.; No. 146, Karl Frued, Pittock, Pa.; No. 147, Lewis L. Frey, 2601 Cass St., Omaha, Neb.; No. 148, Norman Gessert, 227 Clifford St., Madison, Wis. (Assoc.); No. 149, Collins Frank Gillespie, 220 State St., St. Joseph, Mich.; No. 150, Norman Glanders, 308 N. Orchard St., Madison, Wis. (Assoc.); No. 151, Orie E. Greenstein, 310 N. Orchard St., Madison, Wis. (Assoc.); No. 152, Wilfred H. Kellogg, University of California, Berkeley, Cal.; No. 153, Harvey A. Kimball, Adams Hall, Univ. of Wisconsin, Madison, Wis. (Assoc.); No. 154, Raymond Kleinheinz, 912 Erin St., Madison, Wis. (Assoc.); No. 155, Raymond Knier, 308 N. Orchard St., Madison, Wis. (Assoc.); No. 156, William Robert Kerr, c/o Frederick Stearns & Co., Sydney, N. S. W., Australia; No. 157, Earl Lawson, 308 N. Orchard St., Madison, Wis.

(Assoc.); No. 158, Arthur Mehl, 131 Langdon St., Madison, Wis. (Assoc.); No. 159, H. M. Meredith, California College of Pharmacy, Parnassus & First Aves., San Francisco, Calif.; No. 160, Anthony J. Monte-Bovi, 467 55th St., Brooklyn, N. Y.; No. 161, Harold W. Munroe, Tripp Hall, Univ. of Wisconsin, Madison, Wis. (Assoc.); No. 162, Edward M. Nicgorski, 22 S. Orchard St., Madison, Wis. (Assoc.); No. 163, Edward R. Neseman, 215 N. Park St., Madison, Wis. (Assoc.); No. 164, A. J. Niebauer, 903 Oakland Ave., Madison, Wis. (Assoc.); No. 165, Lionel A. Olson, 107 N. Butler St., Madison, Wis. (Assoc.); No. 166, Fred R. Oswalt, 516 S. Saginaw St., Pontiac, Mich.; No. 167, Benjamin Protas, 1701 Houston Ave., Port Arthur, Texas; No. 168, Raymond Reiter, 36 Eau Claire St., Rice Lake, Wis. (Assoc.); No. 169, Ricardo Galbis, Cerro 659, Habana, Cuba; No. 170, Michael Santelli, 148 Chicago St., Milwaukee, Wis. (Assoc.); No. 171, Gordon Schmidt, 308 N. Orchard St., Madison, Wis. (Assoc.); No. 172, Frank G. Scobie, 227 Clifford St., Madison Wis. (Assoc.); No. 173, G. Singh, c/o Survey Directorate, Baghdad (Iraq.), Turkey; No. 174, Sister Emily Berg, 108 Pine St., Buffalo, N. Y.; No. 175, Sister Ethel Knight, Providence Hospital, Detroit, Mich.; No. 176, Sister Euphemia Murray, St. Joseph's Hospital, Phila., Pa.; No. 177, Sister Magdalen, Sisters' Hospital, Waterville, Maine; No. 178, Sister Tatiana Deery, 23200 W. Michigan Ave., Dearborn, Mich.; No. 179, Sister Mary Francis Xavier, 1202 Mound St., Madison, Wis. (Assoc.); No. 180, Sister Zoe Shaughnessy, St. Agnes' Hospital, Baltimore, Md.; No. 181, Arne E. Stensby, 612 East St., Stoughton, Wis. (Assoc.); No. 182, Gordon A. Stuelke, Wisconsin Dells, Wis. (Assoc.); No. 183, A. G. Sturgeon, Owen, Wis. (Assoc.); No. 184, Archie Taylor, 212 Highland Ave., Madison, Wis. (Assoc.); No. 185, Michael C. Vitale, 48 Oakland Terrace, Newark, N. J.; No. 186, Roy S. Wallace, 12 Washington Ave., Endicott, N. Y.; No. 187, Vincent Wasz, 10 Langdon St., Madison, Wis. (Assoc.); No. 188, C. C. White, 256 McCaul St., Toronto, Ont., Canada; No. 189, Raymond K. Wilm, 2878 North 17th St., Milwaukee, Wis.; No. 190, Milton Wruble, 803 State St., Madison, Wis. (Assoc.); No. 191, Vivian Janice Zdrubek, 1538 S. Austin Blvd., Cicero, Ill.

(*Motion No. 24*) *Vote on applications for membership in the American Pharmaceutical Association.*

E. F. KELLY, *Secretary.*

D. P. Schindel, Hagerstown, Md., Pharmacy Week Window Display.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council." —Part of Chapter VI, Article VI of the By-Laws.

ARTICLE III of Chapter VII reads: "The objects and aims of local branches of this Association shall be the same as set forth in ARTICLE I of the Constitution of this body, *and the acts of local branches shall in no way commit or bind this Association, and can only serve as recommendations to it.* And no local branch shall enact any article of Constitution or By-Law to conflict with the Constitution or By-Laws of this Association."

ARTICLE IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meeting of the Local Branches shall be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten with wide spaces between the lines. Care should be taken to give proper names correctly and manuscript should be signed by the reporter.

DETROIT.

The November meeting of the Detroit Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held in the Y. M. C. A. Building, Thursday evening, November 19, 1931. Dinner was served at 6:30.

The meeting was called to order by President James Liddell at 7:30 P.M. The minutes of the previous meeting were read by the secretary and approved. The speaker of the evening, Dr. Edward Lyons, Research Chemist of Parke, Davis & Co., was introduced by Dean Lakey. Dr. Lyons presented a very interesting talk entitled "Man's Struggle with Disease;" he told of the many advances made in medicine in the last 6000 years. The most noteworthy feature of Dr. Lyons' talk was the rapid advances made in medicine during the last fifty years. Considerable discussion followed as to whether medicine has kept up with the increase in population. The speaker did not think it had; he compared the health of the world when the population was four to five million to the present population of 9,750,000,000.

Dean Kraus said, sixty years ago medical education was a disgrace, progress has been made mostly during the last thirty years. He also believed pharmacy students of to-day have opportunities never before possible. Dean Lakey and Dr. Seltzer also defended the present-day status of pharmacy and medicine.

On motion of Dr. Seltzer a rising vote of thanks was given Dr. Lyons for his interesting talk.

DECEMBER.

The December meeting of the Detroit Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held in the Y. M. C. A. Building, Thursday, December 17, 1931. A fine steak dinner preceded the meeting. President Liddell called the meeting to order at 7:45 P.M. The minutes of the previous meeting were read and approved.

President Liddell introduced the speaker of the evening, Norval B. Fast, a registered pharmacist and law student in Detroit. Mr. Fast presented a very interesting paper entitled "We Sign on the Dotted Line." He emphasized the care necessary before signing papers, and discussed contracts as they apply to the retail druggists.

A general discussion followed, led by Professor Crandall which brought out many interesting points of value to the pharmacist. Henry "Santa Claus" Reinhold entered at this time garbed in real Santa Claus attire and loaded down with a bag full of gifts for each member attending the meeting. Each package was neatly wrapped in holly paper and marked with a sticker, "Do Not Open until Christmas." One lady was seen to leave the meeting with an unopened package. Santa Claus left wishing the members of the Detroit Branch a "Merry Christmas."

A rising vote of thanks was given the speaker.

President Liddell thanked Santa Claus and Parke, Davis & Co. for not forgetting the Detroit Branch.

BERNARD A. BIALK, *Secretary.*

NEW YORK.

The December meeting of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held, by the invitation of the Kings County Pharmaceutical Association, at their college, the Brooklyn College of Pharmacy of Long Island University, on Monday, the 14th, President Fischelis taking the chair. There was an attendance of about 145.

The president expressed the thanks of the Branch for the kind invitation extended and for the special program that had been arranged for the evening by the Kings County Society.

The minutes of the November meeting were read by the secretary and approved. Treasurer Currens' report was read and accepted.

Mr. Lehman, Chairman of the Committee on Education and Legislation, reported that the Capper-Kelly Fair Trade Bill would be introduced into this session of Congress. He suggested that all present should write to Senator Wagner of New York, a member of the Committee on Foreign and Domestic Commerce, to request him to report favorably upon the bill.

The secretary submitted the applications of Anton Hogstad, Jr., and Sidney Beckerman for membership in the Branch; these were approved.

The president reported on the presentation of the Remington Medal to Professor E. Fullerton Cook at a Testimonial Dinner held in Philadelphia on Monday, November 16th, saying that over 150 people were present, a large number attending from New York and many coming from Baltimore and other cities. He said that it had been a delightful occasion and that he felt that such a joint undertaking did much to promote good fellowship between the Branches taking part.

The program that had been arranged for the evening was entitled "First Aid Care by the Pharmacist" and President Fischelis introduced, as the first speaker, Dr. Frederick Schroeder, Professor of Toxicology, Brooklyn College of Pharmacy, and Assistant Clinical Professor of Medicine, Long Island College of Medicine, who read the following paper on—

MEDICAL EMERGENCIES.

"The object of this paper is to bring to your attention some of the common, sudden, everyday medical emergencies that are part of the active life of a pharmacist. No attempt will be made to suggest remedial measures other than those that come within the meaning of the term first-aid. Some of the important symptoms will be discussed briefly in order that you may realize their seriousness.

"Though medical emergencies are not as numerous as those of the accidental or surgical types, and bearing in mind that the dividing line between what is medical or surgical cannot be too closely drawn, there are certain alarming conditions that are distinctly medical in nature.

"As a first-aider your duties and limitations are definitely those of any other first-aider. The exception to this rule is in cases of acute poisoning where your knowledge of poisonous drugs and their antedotes gives you a decided advantage over others who render ordinary first aid.

"Let us consider first what constitutes first aid. What are the limitations and what are the things not to be done? The following seven rules offer a safe procedure and can bring no criticism to those who assume responsibility in emergency cases.

1. The application of the manual method of artificial respiration to non-breathing patients
2. The application of antiseptics
3. The bandaging of wounds
4. The control of hemorrhage
5. The administration of certain stimulants when clearly indicated to be necessary
6. The giving of antidotes in cases of acute poisoning and the administration of emetics to remove the poison from the stomach
7. Keeping the patient warm and comfortable until the arrival of the doctor, who should be sent for immediately.

To the contrary, the following are the things that must not be done:

1. Never suture a wound
2. Never use any surgical instruments, such as forceps, knives or scissors
3. Never set a fracture
4. Never reduce a dislocation
5. Never use a hypodermic syringe
6. Never introduce a stomach tube or pump to evacuate the contents of the stomach in acute poisoning
7. Never remove foreign bodies from the eyes
8. Never move a patient without a doctor's orders unless it is impossible to get medical services for a considerable time.

"Success in the treatment of any emergency case depends entirely upon the correct diagnosis. In the accidental kinds the difficulty is not nearly so great as in those of obscure

medical origin. A person may, from all appearances, be in perfect health and without warning suddenly become violently ill. It is here where the good judgment and intelligence of the first-aider is called upon to make a diagnosis. He must be observant, tactful and resourceful. He must have some knowledge of symptoms and signs. He must endeavor to get a history regarding the patient's past and recent illnesses. The opinion formed at the first glance is often of great diagnostic value. If possible, friends, relatives or bystanders should be interrogated to obtain some clew as to the probable nature of the illness. This is most essential when the patient is unconscious.

"Symptoms are merely evidences that something has gone wrong. They may be subjective or objective in character; the former is obtained from the patient and the latter is what we are able to observe. If we are fortunate enough in getting the story from the patient it may be of great usefulness in making a tentative diagnosis. But if the patient is unconscious we have to depend entirely upon the objective symptoms. Always note the color, pulse rate, respiratory rate and pupillary reaction. Also note the breathing, whether present or absent, the evidence of bleeding, signs of shock, pulse rate, fractured bones or unconsciousness.

"The first-aider should know the significance and importance of the various signs and symptoms. With this in mind let us consider a few of the outstanding ones, such as pain, dyspnoea, vomiting, unconsciousness.

"Pain anywhere in the body is always a danger signal. It is beneficent and if we keep this in mind we will not make undue haste to abolish it, as it is nature's method of informing us that something is wrong. It indicates some morbid process and is one of the most valuable of diagnostic aids. There are times, however, when pain may be an unreliable symptom. It may lead to error in diagnosis. The type of patient, his psychic state, his surroundings, all modify this symptom. The tendency to exaggerate pain is most marked in neurotic individuals, while in the phlegmatic type, the aged, and those accustomed to hardships we find the reverse true. We must beware of the malingerer and hysteric.

"Objectively we can learn much from the facial expression. The drawn face, the clenched jaws, the dilated pupils, the livid countenance, all make a picture of agony. Also the attitude or posture in certain conditions is quite characteristic, namely: the sudden fixity in heart-pang, the crouching attitude in colic; the flecked thighs and immobile trunk in peritonitis.

"Certain fundamental principles must be perfectly understood in regard to the treatment to be instituted, for that is our first thought when we see someone suffering. The tendency is to give an opiate immediately. This, of course, should never be done for fear of masking the symptoms and, on the arrival of the doctor, cause delay in making a prompt and correct diagnosis.

"Another unforgivable piece of meddling is the administration of a cathartic for abdominal pain. Under no circumstances must this be done and let it be a cardinal rule in all abdominal complaints to avoid opiates and cathartics until the real cause of the ailment is determined by a physician. A ruptured appendix, perforated peptic ulcer, strangulated hernia, intestinal obstruction, intussusception in children, are all possibilities and causes of abdominal pain. A cathartic in such conditions would do untold harm and might even terminate the life of the patient.

"It would not be amiss here to quote from an article in a recent issue of the *Weekly Bulletin* of the Department of Health of the City of New York relative to appendicitis and the administration of cathartics. This article was taken from the report of Dr. Bower as published in the *Monthly Bulletin* of the Philadelphia Department of Health. It is a survey of 5121 cases in 1928–1929 and 3095 in 1930. The proportion of deaths where laxatives were used is striking. Of 402 patients who gave a positive history of not having had a laxative, 5, or 1 of every 80 died; of 992 who received a laxative, 73, or 1 in 14 died; among the 992 cases, of 103 who received two or more laxatives (in several cases 4 laxatives), 15, or 1 in every 7 died.

"The following quotation is of special interest to you as taken from this same article: 'With the coöperation of the Philadelphia County Medical Society and the Philadelphia Association of Retail Druggists, an effort has been made to warn the public of the dangers of administrations of laxatives and the delay in operation in acute abdominal pain. The former supplied the sticker warning, and 300,000 were sent to all physicians in this city; the latter provided placards which were displayed in drug stores warning the public

against the use of laxatives in acute abdominal pain. Radio talks were also utilized for this purpose.'"

The difficulties arising in diagnosis in major abdominal emergencies are so great that it is unwise for any layman to make haphazard guesses. We often see accounts in newspapers of some unfortunate dying suddenly of "acute indigestion," a term about which we are very skeptical. Many of these are cases of coronary thrombosis (occlusion of the arteries that supply the heart muscle with blood) and have nothing to do with the gastro-intestinal tract.

Dyspnoea is another important symptom and most easy to recognize. It means difficulty in breathing or in other words "shortness of breath." It is recognized by the increased frequency of the chest movements and the increased action of the essential and auxiliary muscles of respiration. If dyspnoea progresses there is added to it an anxious countenance, dilated pupils and finally cyanosis (blueness of the lips and face). Also frequently the patient breaks out in a cold sweat. The blueness is caused by deficient oxygenation of the blood and an increase of carbon dioxide. Only in its intense form does it become general. When slight, it appears in regions that have an abundant capillary circulation and translucent integument, such as the tip of the nose, the ears, the lips and mucous surface of the mouth, the face and especially the cheeks.

Cyanosis is always a serious omen. We also see it in derangements of the circulatory apparatus, as in diseases of the heart and arteries, and persistent foramen ovale. Certain drugs in overdoses may produce it, such as coal-tar derivatives, especially acetanilid, and nitrobenzole. In poisoning by illuminating gas the color is cherry-red, due to the presence in the blood of carbon monoxide hemoglobin.

Vomiting, another distressing symptom, is the forcible expulsion of the contents of the stomach through the mouth. In exceptional cases, as in intestinal obstruction, the contents of the intestines may also be expelled through the mouth—fecal vomiting.

The causes are numerous. Vomiting due to direct irritation of the terminal fibres of the vagus in the stomach is very common and occurs in abnormalities of the contents of the organ, gastritis, peptic ulcer, and in gastric cancer. When caused by central irritation of the vagus it is projectile in character and not preceded by nausea, and it is independent of food intake. Vomiting of gastric origin is followed by a sense of relief, while that of cerebral origin is not. In the latter type we must suspect diseases of the brain and its membranes—anemia, hyperanemia, concussion, sea-sickness, tumor, abscess, meningitis. Another type is the reflex form caused by local irritation of the throat, peritoneal irritation, visceral diseases, disorder of the female sex organs, pregnancy, and in certain nervous disorders. Many other causes could be enumerated, but those given are enough to show how varied the factors are and how important it is to determine their origin.

Among the emergencies that create the most anxiety are those that deal with derangements of consciousness, such as coma, shock and collapse. They indicate some sudden and grave calamity involving both the circulatory and nervous systems.

Coma, which is easily recognized, is often of obscure origin and occurs not only in cerebral disease but in the most varied constitutional conditions. It may be caused by organic disease of the brain, as in cerebral syphilis, acute ancephalitis; or focal, as in intracranial hemorrhage, embolism, thrombosis; in inflammation of the meningis; in traumatism of the head; in fully developed febrile infectious diseases. Only exceptionally is coma complete under these circumstances. Early and complete coma occurs in the severe forms. We find it in uremia, diabetes, acute yellow atrophy of the liver, narcotic poisoning, especially by morphine, chloral, poisonous gases; anesthetics as ether, chloroform and nitrous oxide; drowning and asphyxia from other causes; sunstroke and other conditions produced by excessive heat; hysteria.

Unconsciousness, for the benefit of the first-aider, can be placed under two main headings, the "red" and "white" types. In "red" unconsciousness there is an excess of blood in the head and the patient appears flushed. This immediately suggests the possibility of apoplexy, alcoholism, sunstroke, epilepsy and sometimes fractured skull. In "white" unconsciousness the face of the patient appears blanched and is found in fainting, nervous shock, heat exhaustion, freezing and extreme hemorrhage. This classification logically suggests treatment, namely, in the "red" form the head should be kept higher than the body and in the "white" form the head is kept lower.

The emergencies in which a pharmacist has exceptionally good training are those of acute poisoning. His knowledge of poisonous drugs and chemicals gives him an advantage over the layman. He is taught what antidotes and emetics to give. His responsibility ceases after the preliminary aid is given. The after-care of the patient must be assumed by the physician.

So far we have considered the duties of the first-aider. We have barely touched on diagnosis and very briefly and incompletely considered a few important symptoms. It would be desirable to speak of other symptoms but the time allotted will not permit. However, just a word about treatment in general as applied to emergency cases. *First*, be reasonably sure of your diagnosis. In the event that you are uncertain as to the nature of the trouble, do nothing. Keep the patient warm and comfortable until the arrival of the physician. *Secondly*, if the cause is determined, the following six rules should be your guide:

1. If the patient is not breathing artificial respiration should be administered at once
2. If external bleeding is apparent it must be controlled at once. Internal bleeding can only be handled by a physician
3. If signs of severe nervous shock are present it must be treated immediately preceding all other treatment except that indicated under artificial respiration and bleeding
4. If fractures are present extreme care must be taken in handling the patient to prevent complications. Improper handling may result in serious trouble
5. If injuries to the head or "red" unconsciousness are present care must be taken that no stimulants are given except as a last resort in case of the most severe nervous shock and weakness of the patient
6. In all cases except sunstroke immediate steps must be taken to keep the patient warm. This measure may mean the difference between life and death.

In conclusion a plea is made for a better understanding of the subject by the pharmacist. It is urged that the subject be taught in all schools of pharmacy.

The next speaker was Dr. J. J. Wittmer, Medical Director, New York Edison System Electric Companies, and Assistant Clinical Professor of Medicine, Long Island College of Medicine, who delivered an extemporaneous address on "Surgical Emergencies," illustrated by blackboard sketches and by reference to a skeleton and anatomical models. He spoke on eye injuries, earache, cuts with and without hemorrhages, simple and compound fractures, dislocations, internal hemorrhages, shock and burns and emphasized what the pharmacist should or should not attempt to do in the way of first aid for such cases.

The third speaker was Mr. S. M. Pratt, Safety Engineer, Brooklyn Edison Company, who spoke on "Artificial Respiration;" he referred in detail to those cases when artificial respiration is necessary and vital, such as gas poisoning, drowning and shock; he said that the pulmotor was becoming obsolete, inhalators of various types taking its place and being used in conjunction with artificial respiration. He stressed the fact that pharmacists should be capable of applying artificial respiration to accident victims brought into their pharmacies in a non-breathing condition, as any loss of time in such cases would probably result in death. Mr. Pratt, assisted by a corps of 5 men from the Brooklyn Edison Company, then demonstrated the "Schaefer Prone Pressure Method of Artificial Respiration" accompanied by the use of the H. H. Inhalator. Full directions for this method, as given by Mr. Pratt, follow:

"Artificial respiration must be applied whenever the patient is not breathing. It must not be applied when the patient is breathing.

"To determine whether the patient is breathing place your hand on the patient's chest just below the collar bone and again below the breast bone. If no movement is felt at either location, start artificial respiration immediately.

"The *Patient* must first be placed on his stomach. Grasp the forearms just above the wrists to prevent spraining the wrists. Place the arms vertically over the head and roll the body over by pulling one arm squarely across the body.

"Bend one arm at the elbow and place the patient's head so that the temple rests securely on the hand, with the face turned in the direction of the fingers.

"Extend the other arm as far forward as possible to extend the chest cavity to its maximum expansion.

"Pull the tongue forward and remove any foreign bodies which might interfere with breathing. Should the jaw be locked, make no further efforts to open the mouth.

"Kneel astride of the patient. Turn your palms out, using the edges of your hands on

the patient's back, run your hands down until they strike the hip bones.

"Cup your palms over the small of the back, the wrists facing each other about 4 inches apart, with the thumb and the first two fingers over the floating ribs.

"Swing forward, with the arms held stiff, until your shoulders are directly over the hands. Adjust your position to bring your thighs parallel with your arms.

"You are now ready to apply artificial respiration.

"Allowing one second to each count, at '1' place the hands and start swinging forward; at '2' the shoulders are vertical over the hands; at '3' remove the hands from the back and allow the arms to drop, relaxed. During '4,' '5' sit upon the heels and rest.

"The patient is thus made to breathe approximately 12 times per minute. Count as you proceed.

"When another man is available, the *Operator* may be relieved, but the patient may die if artificial respiration is interrupted during the exchange of operators. To avoid this a standard method of changing operators is necessary.

"The *Relief Operator* is coming on from the right side, so his right knee is placed against the *Operator's* right knee. *Operator* counts aloud, and *Relief Operator* counts with him, to get the proper rhythm.

"Using the *Patient's* body as a support, the *Operator* swings off the *Patient* at the count of '1,' and completes another cycle of respiration from his side while the *Relief Operator* moves his right knee into the position against the patient.

"The *Relief Operator* then completes a cycle of respiration from his side while the *Operator* moves away. At the next count of '1,' using the *Patient's* body as a support, the *Relief Operator* swings his left knee over the *Patient* and assumes the proper position.

"A matter of major importance is the avoidance of nervous shock due to the rapid cooling of the *Patient's* body.

"This heat loss is the most dangerous when the *Patient* is exposed to the elements.

"To combat this, the *Patient* must be thoroughly wrapped. For this purpose it is preferable to use a woolen blanket with a rubber blanket outside of it.

"Place the blanket, rolled to half its width, alongside the *Patient*, with the rolled part next to the body.

"Counting aloud, the *Operator* shifts to the offside and continues administering artificial respiration from that position. His sole interest is the regularity of the breathing.

"At the count of '3' the *Assistants* roll the body onto one side, unrolling the blanket half way under it. At '1' the *Operator* continues work. At '3' the *Assistants* roll the body in the other direction and complete unrolling the blanket. To assist in conserving the *Patient's* body heat, place hot pads between the legs at the crotch, under the armpits, near the heart, and up and down the torso. At the next count of '3' the *Assistants* bring the edges over the *Patient's* back.

"The *Operator* now shifts back into normal position.

"To keep the patient properly protected under extreme weather conditions, it may be necessary to move the patient to a sheltered location.

"Where this is necessary, three men kneel alongside the *Patient*, on the knee nearest the *Patient's* feet. Counting aloud the *Operator* shifts to the offside. The lifters place their arms under the *Patient*. The *Operator* applies pressure from this position.

"At '3' the *Lifters* raise the *Patient* to their knees. At '1,' the *Operator* clasps his hands around the *Patient* at the diaphragm, and constraining the abdomen, scissors fashion, causes an exhalation.

"At '3' the *Lifters* stand up. The *Operator* causes an exhalation at the count of '1.' This treatment is continued until the *Patient* has been carried to the sheltered location. The *Patient* is then lowered, first to the *Lifters'* knees, the *Operator* meanwhile continuing to administer artificial respiration as described, and then to the ground.

"The *Operator* then shifts back into normal position.

"The problem of the removal of noxious gases from the blood, and of supplying oxygen mixed with a breathing stimulant, carbon dioxide, is important.

"For this reason an inhalator, when it is available, should always be used in conjunction with artificial respiration.

"Never delay or interrupt artificial respiration because of the inhalator. The inhalator assists resuscitation but never replaces artificial respiration.

"One man is delegated to handle the inhalator. He fills the reservoir with carbogen, *i. e.*, 93% oxygen, 7% CO_2, and places the mask securely over the *Patient's* face.

"The flow of carbogen should be so adjusted that the bag fluctuates, being depressed by each inhalation and filled during each expiration.

"We will now assume that the *Patient* has been revived and is breathing of his own volition.

"Keep the *Patient* lying down. Do not permit any exertion for several hours. Watch for a possible relapse.

"Continue the application of the inhalator until the *Patient* is normal."

The meeting was now thrown open for discussion and Messrs. Christ, Gesoalde, Seley, the president and the secretary took part.

Dean Anderson moved a rising vote of thanks to the speakers and the corps of men who had taken part in the demonstration; this was carried with applause.

Dr. Fischelis again expressed the thanks of the New York Branch to the Kings County Pharmaceutical Society for the splendid program they had arranged. He then appointed a Nominating Committee consisting of Dr. Mayer, Prof. Canis and Dr. Schaefer to bring in a report on nominations for Officers of the Branch for 1932 at the next meeting.

Following the adjournment of the meeting, many of the members made a tour of the building.

HERBERT C. KASSNER, *Secretary.*

PHILADELPHIA.

NOVEMBER MEETING.

The November meeting of the Philadelphia Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held at Temple University, School of Pharmacy, Tuesday evening, November 10, 1931, the meeting being called to order at 8:20 P.M.

President Munch introduced Dean John Minehart, of the School of Pharmacy, Temple University, who is celebrating his twenty-fifth year of association with the school. Dr. Minehart, responded by very generously recalling many pleasant reminiscences first of his induction to the deanship and second the splendid coöperation received during the ensuing years. He stressed the fundamental qualities both pharmacists and physicians should possess and the necessity for their closer coöperation. The official crude drugs came in for their share of praise, stressing the necessity for their proper handling.

The chief speaker of the evening, Mr. L. E. Warren, Chemist, Food and Drug Control, United States Department of Agriculture, was next introduced by the President. The subject of his talk—"Pharmacy and Medicine in Ancient Egypt." Many illustrations featuring actual photographs of original material found in Egypt were shown. The material thus illustrated consisted of various instruments; certain implements, copies of different papyri; weights and measures; mosaics with their interpretations and murals depicting various stages of operations on the human body.

A rising vote of appreciation was extended Mr. Warren.

DECEMBER MEETING.

The December meeting of the Philadelphia Branch, AMERICAN PHARMACEUTICAL ASSOCIATION was held in the Library of Sharp and Dohme, Manufacturing Chemists, at Broad and Wallace Streets, Philadelphia, Pennsylvania, on the evening of December 15, 1931. The meeting was called to order at 8:15 P.M.

The minutes of the November meeting were read and approved.

Under the new business, Chairman Slothower proposed the name of A. Homer Smith for Branch membership. On vote, Mr. Smith was accepted as a Branch member.

President Munch then announced the subject for discussion—"A Symposium on Digitalis." Various phases discussed were the Botany, Pharmacognosy, Manufacture of Galenicals, Bioassay and Standardization, Marketing and the Clinical Indications for this drug.

The first apeaker was E. H. MacLaughlin, who very aptly described the Botany of the plant, the significance of its common names and especially the growing habits of the official variety. Among his exhibits were leaves of the official drug; a decolorized leaf to show type of venation and samples of seeds from six different other varieties of non-official Digitalis plants. Of decided significance were the seeds of the official variety, since they were the smallest of the Digitalis varieties shown.

The Pharmacognosy of Digitalis was described by W. J. Stoneback, who showed how the drug may be identified both macroscopically and microscopically. The chief points of interest during this phase of the discussion were the histological location of the glucosides, and the reagents used to demonstrate their presence. The leaves of *Digitalis purpurea, Digitalis ambigua* and *Digitalis lanata* were compared for macroscopic appearance. Types of trichomes, their placement of the leaves; their length and width in microns furnish the

microscopic differentiation of the three species compared.

The "Manufacture of Galenicals" was carefully described by L. L. Miller. His description started with the grinding of the drug; its extraction under carefully regulated conditions; its standardization before packaging and finally the description of the finished product ready for the market.

The U. S. P. assay method for Digitalis and its preparations was discussed and illustrated by P. S. Pittinger. The apparatus and animals required together with the standard substance (ouabain) for the comparison and adjustment of final results were explained in detail.

Ambrose Hunsberger acquainted the audience with the number and variety of Digitalis and its preparations a dispensing pharmacist is required to handle. He emphasized the necessity of proper storage to prevent rapid deterioration and commented on the difference in keeping qualities possessed by preparations made twenty years ago with those of recent manufacture.

The climax of the meeting came when Dr. J. E. Wolffe gave the impression of various clinicians; how some do prescribe and how others should prescribe digitalis preparations according to indications shown by various heart conditions; and the results they expect to get when preparations of this type are prescribed.

On motion a rising vote of appreciation was extended to the speakers of the evening.

After the meeting a tour was made through the Crude Drug Mill and the other departments of the plant where Digitalis preparations are manufactured; the thought being to start with the crude drug and to follow through to the finished product.

In this the Committee on Arrangements was successful, as many favorable comments were made.

An audience of seventy-five was in attendance.

The officers of the Branch wish to take this opportunity of thanking Sharp and Dohme for their coöperation and courtesy in helping to make this meeting a successful one.

W. J. STONEBACK, *Secretary.*

ACADEMY OF PHARMACY AND NORTHERN OHIO BRANCH.

The following is a report of the first meeting (January 12th) of the Academy of Pharmacy and the Northern Ohio Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The society held its first regular meeting of 1932, Friday, January 8th, at the lecture hall of the School of Pharmacy, Western Reserve University.

The meeting was preceded by the usual dinner and Council meeting held at the Faculty Club. Dean Jordan of Purdue University was guest of Council.

The following officers were installed for the coming year:

President, A. L. Flandermeyer
Vice-President, Emil Petersilge
Secretary, F. J. Bacon
Treasurer, Herbert Decker.

President Flandermeyer, Purdue 1900, introduced Professor Charles B. Jordan, Dean of the School of Pharmacy of Purdue University to the society. Dean Jordan presented a paper on "Some Aspects of Professional Pharmacy." (It is hoped to publish the address in a succeeding issue of the JOURNAL.)

After discussion the Academy voted its thanks to Dean Jordan for the interesting and instructive paper.

F. J. BACON, *Secretary.*

SOUTH DAKOTA STATE COLLEGE STUDENT BRANCH.

A meeting of South Dakota State College Student Branch was held by the Student Branch at South Dakota State College on December 9th.

The election of officers for the coming year was held. R. Matson, of Brookings, succeeded F. O'Connell, Boone, Ia., as *President;* M. Jelinek, of Canton, S. D., replaced W. Eer Nisse, of Hot Springs, S. D., as *Vice-President;* R. Gruetzmacher, of Gibbon, Minn., succeeded E. Pelant, of Minneapolis, as *Secretary,* and R. Fischer, Springfield, Minn., was elected *Treasurer,* all of the incoming officers being sophomores.

Dean Serles closed the meeting with a short address commending the society's first year of existence.

EDWARD A. PELANT, *Secretary.*

PITTSBURGH.

At the January meeting, Pittsburgh Branch, AMERICAN PHARMACEUTICAL ASSOCIATION, there was a Round Table discussion led by Frank S. McGinnis on the subject "Some Problems in Hospital Pharmacy." The annual election and instalment of officers was held.

EDITORIAL NOTES

Editor: E. G. Eberle, 10 West Chase Street, Baltimore, Md.

Members of the Council, A. PH. A.: S. L. HILTON, *Chairman;* CHARLES H. LAWALL, *Vice-Chairman;* E. F. KELLY, *Secretary;* H. V. ARNY, A. G. DUMEZ, H. A. B. DUNNING, WILLIAM B. DAY, C. E. CASPARI, J. H. BEAL, W. BRUCE PHILIP, T. J. BRADLEY. *Ex-Officio Members:* WALTER D. ADAMS, *President;* J. G. BEARD, J. W. DARGAVEL, *Vice-Presidents;* C. W. HOLTON, *Treasurer;* E. G. EBERLE, *Editor of the Journal;* A. G. DUMEZ, *Editor of the Year Book;* THOMAS ROACH, *Chairman of the House of Delegates.*

Collaborators: The Members of the Council; E. FULLERTON COOK, *Chairman,* U. S. P. Revision Committee; E. N. GATHERCOAL, *Chairman,* N. F. Revision Committee; Chairmen of the Sections, A. PH. A.: L. E. WARREN, C. J. CLAYTON, W. G. CROCKETT, ROWLAND JONES, J. T. LLOYD, TOWNES R. LEIGH, *President,* A. A. C. P.; CHARLES B. JORDAN, *Chairman,* Executive Committee, A. A. C. P.; A. L. I. WINNE, *President,* N. A. B. P.; HENRY C. CHRISTENSEN, *Secretary,* N. A. B. P. Scientific Section—Board of Review on Papers: *Chairman,* GLENN L. JENKINS, Baltimore, Md.; EDWARD E. SWANSON, Indianapolis, Ind.; W. J. HUSA, Gainesville, Fla.

LET US ASSIST YOU IN SOLVING PRESCRIPTION PROBLEMS.

Dr. S. L. Hilton, former president of the AMERICAN PHARMACEUTICAL ASSOCIATION, *Chairman* of its Council, and well and favorably known pharmacist of Washington, has consented to answer problems that come up in prescription practice. We desire to express appreciation for this coöperation and know that the suggestions related to prescriptions will be sources of valuable information. Mail your prescriptions with explanation of the trouble you have had with them and explain your procedure and why the resulting preparation has not been satisfactory. Address the JOURNAL A. PH. A., 10 West Chase Street, Baltimore, Md. The valuable work of Dr. Hilton on the U. S. P. and N. F. is known to you.

AN APPARATUS FOR THE COMPARISON OF RATES OF SOLUTION OF SOLIDS.

The apparatus described consists of a graduated capillary tube, connected to a float and a small perforated metal boat, and its weight is so adjusted that, when the boat is empty, the float is just submerged and the capillary is entirely above the level of the liquid in which the apparatus is floating. The substance to be tested is placed in the boat, and the apparatus thus weighted sinks to an observed mark on the capillary tube. As the substance dissolves or disintegrates and falls through the perforations of the boat, the upright capillary rises above the level of the liquid. A time curve giving the rate of solution can be obtained by reading the graduations on the capillary, and is valuable for comparing the behavior of different specimens of colloidal substances like soap and for finding the rate of disintegration of compressed tablets, etc.—V. Cofman (*J. Chem. Ind.*, 52 (1931), 1057).

FORMULA AND SYNTHESIS OF VITAMIN C DISCOVERED BY NORWEGIAN CHEMIST.

Before a recent meeting of the Norwegian Society of Science in Oslo, a young Norwegian chemist, Ottar Rygh, presented a report of his research work carried on for several years and resulting in the discovery of the formula and constitution of vitamin C. According to accounts in the newspapers, this work has been conducted chiefly in the laboratory of the Norwegian drug firm, Nygaard & Co., and with its financial support. Ottar Rygh and his assistants not only have been able to prepare the actual vitamin C substance in pure crystalline form and to determine its empirical formula, but they have also succeeded in finding the constitution formula, of the substance and accomplishing its synthesis from the alkaloid narcotine, of which the vitamin C substance is found to be a relatively simple derivative.

AN AUTOMATIC p_H RECORDER.

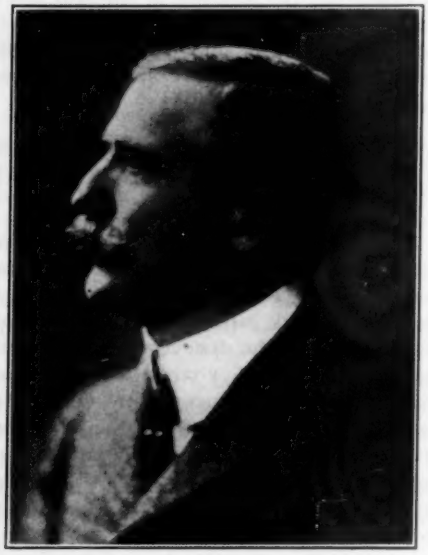
In large scale operations in which p_H control is desirable a considerable economy can be produced by using a continuous recording

device which automatically registers on a chart the p_H fluctuations of the solutions. An instrument is described which gives a continuous record of such changes. The apparatus may be arranged to operate warning signals, *e. g.*, colored lights, or electric bells, whenever the permissible limits of p_H variations are exceeded.—C. Morton (*J. Chem. Ind.*, 50, 48, 436).

PERSONAL AND NEWS ITEMS.

SIR HENRY S. WELLCOME.

The many friends and associates of Dr. Henry S. Wellcome, *Honorary President* of the AMERICAN PHARMACEUTICAL ASSOCIATION, and member since 1875, are pleased that he has been knighted by King George. He is a native of Wisconsin and a graduate of the Philadelphia College of Pharmacy and Science. Reference was made in last month's issue of the JOURNAL



SIR HENRY S. WELLCOME, London.

to the new Wellcome Research Building, in London.

Dr. Wellcome is a director of the Gorgas Memorial Institute of Tropical and Preventive Medicine, operating scientific laboratories at Panama for research work, touching causes and prevention of tropical diseases. He is a life member of the A. PH. A. and has shown an active interest in its scientific work since the beginning of his membership in 1875. During the past several years he has taken an active interest in the campaign for the establishment of the American Institute of Pharmacy in Washington.

It would require more space than available at this time to speak of the archæological work carried on by him in Ethiopia. The extent of this may be gathered from the employment of a technical and administrative staff of twenty-five Europeans and more than 3000 workmen. In 1887 he published a work of some 500 pages on the Alaska Indians under the title of "The Story of Metlakahtla." He has received world-wide recognition for his great service to science and medicine, for his interest in many enterprises. He is an honorary member of many societies and has received honorary degrees from a number of institutions. The following represent some of his research activities:

The Wellcome Physiological Research Laboratories, London—(1894).

The Wellcome Chemical Research Laboratories—London—1896.

The Wellcome Historical Medical Museum—London—1913.

The Wellcome Bureau of Scientific Research—London—1913 and the Museum of Medical Science (including Tropical Medicine and Hygiene)—1914 and the auxiliary Entomological Research Laboratory at the Royal Horticultural Society Gardens, Wisley, Surrey—1915.

The Wellcome Tropical Research Laboratories—Khartoum, Anglo-Egyptian Sudan, Upper Nile, Africa—1901, and the fully equipped auxiliary Floating Tropical Research Laboratory on the Upper Nile, and its tributaries—1906.—For sketch, see July 1925, page 573.

ANTON HOGSTAD, JR.

CHAIRMAN PHARMACY WEEK.

The new chairman of the Pharmacy Week Committee is Prof. Anton Hogstad, Jr., formerly member of the faculty of St. Louis College of Pharmacy, now of Merck & Co., Rahway, N. J. He was born at Neenah, Wis., February 21, 1893, where he received his earlier education; later, the family moved to Pennsylvania and the young man entered Conshohocken High School, graduating in 1910. He engaged with Shoemaker and Busch in the same year, and matriculated at the Philadelphia College of Pharmacy and Science in 1911, graduating in 1914; he was awarded the C. B. Lowe Materia Medica Prize for the highest mark in this subject and the Henry Kraemer

Microscopical Prize for the most meritorious thesis involving original microscopical work; was appointed student assistant in microscopical laboratory during Senior year which was followed by an instructorship in Botany and Pharmacognosy the next year, then by about three years of association with the late Dr. Henry Kraemer. This was followed by the directorship of the Hay Fever Department of H. K. Mulford Co. at the biological laboratories at Glenolden, Pa.

In the fall of 1917 Professor Hogstad accepted a position at the South Dakota State College Division of Pharmacy, in Pharmacognosy and Materia Medica. During eight years of association with this institution, he inaugurated the

DR. ANTON HOGSTAD, JR.

well-known Medicinal and Poisonous Plant Investigations Gardens, the major research problem being American Wormseed Oil. He received the degree of B.S. in Chemistry in 1919, from this institution and, later, the M.S. degree in Botany from the same institution.

Leave of absence was obtained in 1925–1926 as D. F. Jones Fellow in the Biochemical Division of the University of Minnesota, doing graduate work under the direction of Dr. R. A. Gortner, noted biochemist and colloid chemist.

Dr. Hogstad was appointed professor of Physiology and Materia Medica, St. Louis College of Pharmacy in 1926, succeeding the late Dr. Henry Milton Whelpley. He also received the appointment of Pharmacognosist to the Missouri Botanical Garden at which institution he inaugurated the present medicinal plant garden.

He is the creator and developer of the Prescription Shop, Hesselberg Drug Store, in St. Louis, an institution that departed from many traditions of the past and has achieved considerable success.

He is now in the employ of Merck & Co., Inc., as personal contact relations man in fields of Pharmacy and Medicine; the title in connection with the institution being that of Special Assistant to the President.

Dr. A. R. Bliss, Jr., and Dr. James B. Lackey of Southwestern University and Dr. Richard G. Turner of U. T. Junior College of Martin, have been named as members of a Committee to study the immediate needs for adequate development of the Reelfoot Biological Station at Reelfoot Lake. It is said that the Reelfoot Biological Station will have the double advantage of presenting both marine and land-life problems.

Dr. John J. Abel has been elected president of the American Association for the Advancement of Science. He is known throughout the world for his work on the chemistry of the secretions of the ductless glands, and for various other scientific attainments. He is a member of many learned societies and has received honors from institutions of this country and abroad.

Rowland Jones, Jr., *vice-president-elect* of the AMERICAN PHARMACEUTICAL ASSOCIATION, is a graduate of the Course in Pharmacy of the University of Wisconsin. After graduation he came to South Dakota and is associated with his father and brother in the pharmacy at Gettysburg.

Dr. George Alexander Knowles, an alumnus of the Philadelphia College of Pharmacy and Science, has been named Assistant Director of Public Health. His medical activities in Philadelphia and Pennsylvania are outstanding.

We are in receipt of a reprint from the *Archiv der Pharmazie und Berichte* der Deutschen Pharmazeutischen Gesellschaft. The subject deals with the water-soluble concentrates of digitalis infusions and the author is **Dr. John C. Krantz, Jr.,** of Baltimore.

Dean Theodore J. Bradley recently visited in Porto Rico on invitation of the School of Pharmacy.

F. H. King, of Delphos, Ohio, has been named president of the Peoples Bank of his home city.

The pharmacy window of Rennebohm's Highland Ave. pharmacy, Madison, Wis., won the Wisconsin prize for window display. The window was arranged by **Edward J. Ireland** of the University of Wisconsin and **Harold J. Granger,** manager of the store. It shows a most interesting collection of old books collected in the United States and Europe and along with that apparatus used in by-gone days.

Dr. Edward G. Boring of Harvard University delivered an address on "The Psychology of Consciousness" as retiring vice-president and chairman of Section 1, Psychology, at the recent meeting of the American Association for the Advancement of Science in New Orleans, December 29th. Dr. Boring in his early days worked in his father's pharmacy at 10th & Fairmount Ave., Philadelphia; the latter was for more than fifty years a member of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The Maryland State Department of Health, through Dr. Robert L. Swain, Deputy State Food and Drug Commissioner, has issued a very interesting report. In that connection the number of items analyzed, the number of inspections made, etc., are given. A questionnaire is included on Drug Store Survey; with the report of the information obtained, an outline of legal decisions; narcotic law and other legislative activities, are also given.

Reference is made to the Maryland Prescription Survey which has been reported in the JOURNAL.

The *Journal of the N. A. R. D.* has been somewhat enlarged in size and a new cover adorns the January 7th issue. It will be published semi-monthly instead of weekly as heretofore.

Dr. Leonard A. Seltzer, an outstanding pharmacist, has been elected president of the Detroit Retail Druggists' Association for 1932.

A FEW OF MANY ITEMS OF PHARMACEUTICAL INTEREST OF 1931.

Cairo, Egypt, exhibited historical material relating to ancient and modern pharmacy at the Agricultural and Industrial Exhibition.

Hossein Amin, member of the A. PH. A., is chief inspector of pharmacists in the Department of Public Health of Cairo.

Ergot has been raised artificially in pharmaceutical laboratories.

The United States participated in the Conference on the Limitation of the Manufacturers of Narcotic Drugs at Geneva.

Bacteria, visible under the microscope, were changed to invisible, filterable phases when Dr. Arthur I. Kendall, of the Northwestern University Medical School placed them in a new medium containing protein; he was also able to return them to visible form, and grew filterable viruses in the new medium, and, through the new Rife microscope, saw them as tiny oval blue bodies.

Six generations of the organism causing infantile paralysis were for the first time successfully grown outside the human body at Mt. Zion Hospital, San Francisco, by Dr. Frederick Eberson, director of the clinical laboratories.

Fleas were found to be carriers of typhus fever, previously thought to be carried only by the body louse, as a result of experiments reported by Drs. R. E. Dyer, A. S. Rumreich and L. F. Badger, of the U. S. Public Health Service.

A forward step in the battle against leprosy was reported when Dr. Earl B. McKinley, of the George Washington University Medical School, and Dr. Malcolm H. Soule, of the University of Michigan, announced that they had isolated the organism which presumably causes this disease and had succeeded in growing it outside the human body.

A serum was developed by Dr. W. C. Hueper, assisted by Miss Mary Russel, both of the Cancer Research Laboratory of the University of Pennsylvania, which may lead to the conquest of the fatal disease, leukemia, in which the white blood cells multiply very fast.

Viosterol, or irradiated ergosterol, was found to be a new and effective treatment for radium poisoning, such as that developed by workers on radium-dial watches.

The Nobel Prize in medicine for 1931 was awarded to Professor Otto Warburg, of the Kaiser Wilhelm Institute for Biology, Berlin, for his important contributions in the fields of cancer, biological physics and the respiratory function of the tissues.

The Capper Award, founded by Senator Arthur Capper, of Kansas, consisting of a gold medal and five thousand dollars cash, was given to Dr. L. O. Howard, former chief of the Bureau of Entomology, for his distinguished service in leading the army of science against the armies of insects that threaten man's crops, his forests, his house and his health.

"The Oersted" memorializes Hans Christian Oersted, Professor of Physics in the University of Copenhagen. He was the son of an apothecary and during his earlier years was employed

in the pharmacy of his father. Hans Christian Anderson immortalized them in "The Two Sons of a Danish Apothecary."

The Fourth International Congress on Medicinal Plants and Perfume-yielding substances, was held in Paris during the week of July 16th.

In commemoration of the 50th anniversary of its founding the Tokyo Imperial University is preparing a history of its fifty years' existence. The history of pharmacy will be included.

The London (England) County Council has directed that pharmacy departments under control of the city shall be supervised by registered pharmacists.

Prof. Karl Freudenberg, director of the Chemical Institute of the University of Heidelberg delivered a series of lectures under the Charles E. Dohme Foundation.

The earthquake in New Zealand in February destroyed many pharmacies; the loss of property was tremendous and many lost their lives.

Dr. A. G. DuMez contributed an article to the *Journal of Chemical Education* dealing with the history of the development of pharmaceutical history in Maryland, during the past century and a half.

The Conference Board of the National Institute of Health and unofficial voluntary body to assist the public health service in carrying out the purposes of the National Institute of Health is composed of Francis P. Garvan, C. H. Herty, Dr. W. H. Welch, Dr. H. H. Young, Dr. Frank Billing, Dr. J. C. Merriam and F. A. Delano.

The centenary of the discovery of chloroform was celebrated by scientific bodies throughout the world. Three scientists are entitled to consideration in connection with the discovery; namely, Samuel Guthrie of the United States; Baron von Liebig, Germany; and Eugene Soubeiran, of France.

Dr. Lyman Spalding, "Father of the U. S. P.," was entered as one of those entitled to receive a place in the Hall of Fame, while not receiving the necessary votes it is hoped to place him in nomination again.

A plaque in honor of Dr. C. W. Long was unveiled March 30th at the Davis-Fischer Sanatorium, Georgia. Dr. Long was the discoverer of ether anæsthesia. He was both a physician and a pharmacist.

The tenth anniversary of the discovery of Insulin by Dr. Fred G. Banting and Charles H. Best was celebrated by various medical organizations; notably that of Wisconsin.

The beginning of the sixth century of an Italian College of Pharmacy, in Rome, was celebrated May 21st.

Indiana, Massachusetts, Nebraska and Virginia celebrated their 50th anniversaries this year.

Col. Robert U. Patterson was appointed Surgeon General of the United States Army, May 12th.

A conference of experts in vitamin investigations was held under the auspices of the U. S. P. Board of Trustees and Committee of Revision on May 7th.

The 1931 Congress of Military Medicine and Pharmacy was held at The Hague, June first to sixth. No pharmacists were among the delegates for the United States.

The Liebig celebration was held at Giesen, Germany, July 19th, arranged for by the Society for Chemical Industry. Baron von Liebig in his early years was employed in a German pharmacy.

In an official report of enforcement of Canadian antinarcotic forms it was stated that it was necessary to institute proceedings against only one retail druggist in Canada. Canada has about 3500 drug stores.

Isaac Edward Emerson of Baltimore died January 23, 1931. He established a chair in the University of Maryland School of Pharmacy and endowed it.

Narakichi Hishida, publisher of the *Japanese Weekly Druggist*, died at his home in Tokyo, January 8th.

Dr. Albert Schammelhout, an outstanding Belgian pharmacist, died January 20th.

The AMERICAN PHARMACEUTICAL ASSOCIATION provides Life Membership for those who have been members for 37 years. Among those who gained this distinction in 1931 are: W. H. Bradbury, Washington; Addison Dimmitt, Louisville; W. A. Hover, Denver; William C. Powell, Snow Hill, Md.; William Votteler, Louisville. The two first named have since ceased their labors.

Walter D. Adams, Forney, Texas, was elected President of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The 1931 import limits of narcotic drugs was tentatively fixed at 135,000 pounds of crude opium and 225,000 pounds of coca leaves.

George Eastman, of Rochester, gave a million dollars to the City of Stockholm for a dental dispensary, similar to those established by him in London and Rome.

Prof. Carl Becker, Cornell University, was elected president of the American Historical Association.

Das Chemische Zentralblatt, official publication of the German Chemical Society celebrated the conclusion of 100 years of service.

J. U. Lloyd, oldest living ex-president of the AMERICAN PHARMACEUTICAL ASSOCIATION, completed "Felix Moses, the Beloved Jew of Stringtown-on-the-Pike." In the book he has interwoven fact and folk lore with fiction in the life experiences of a "unique character whose romantic record challenges imagination."

The American Druggists' Fire Insurance Company celebrated its silver anniversary.

The 50th anniversary of the Red Cross was celebrated on May 21st. Florence Nightingale was born May 12, 1820; Jean Henri Dunant, May 8, 1828.

The members of the New National Advisory Health Council is composed of Drs. Simon Flexner, M. P. Ravenel, M. J. Rosenau, William H. Welch, W. S. Leathers, Haven Emerson, W. H. Howell, C. E. A. Windlow, Alfred Stengel; Prof. S. C. Lind—the latter seems to be the only one outside the medical profession appointed member of the Council. Former U. S. Senator Ransdell, the author of the bill, in speaking of the proposed measure said: "It is proposed to bring together for this work under our directing the very ablest experts in the sciences of chemistry, pharmacy, dentistry, medicine, surgery, physics, biology, bacteriology and pharmacology."

Chairman H. A. B. Dunning has reported the purchase of Lots 7, 12, 13, 14 and 15 in Square 62, N. W., Washington and negotiations were completed for the purchase of Lots 16, 17, 801 and 802 in Square 62.

Our veteran member, **Prof. John Uri Lloyd,** is improving nicely, after undergoing an appendicitis operation. His many friends congratulate him and hope for complete recovery and return to health.

Mrs. Charles E. Dohme and **Mrs. John F. Hancock,** both of Baltimore, have celebrated their 91st birthdays. Both of these celebrants enjoyed happy days with members of their respective families and visiting friends, and received wishes for many more years.

Editor Kantrowitz announces that the proposed American pharmacists' tour to Europe—England, Holland, Germany, Austria, Switzerland, Italy, France, has been moved forward a week, instead of sailing on June 15th, the date has been fixed for June 22nd.

CONSTITUCIONES,
Y
ORDENANZAS,
PARA EL REGIMEN
DE LA BOTICA
DEL HOSPITAL REAL, Y GENERAL
DE LOS INDIOS DE ESTA NUEVA ESPAÑA,
Mandadas guardar por S. M. en Real Cédula de 27 de Octubre del año de 1776.

The above is the first page of a New Year Greeting mailed by Pharmacist Amador G. Ugalde, president of Mexican Pharmaceutical Association. It will be noted his pharmacy has passed the first hundred years of its establisment.

CHEMICAL REFERENCE WORKS IN INDIANAPOLIS.

"A committee appointed by the Indiana Section of the American Chemical Society has compiled and published in a 35-page booklet data concerning the most important chemical literature available in Indianapolis libraries. Eight libraries coöperated with the committee in compiling lists and granting members of the section the privilege of using works of reference in the libraries. The booklet devotes 22 pages to listing chemical journals, indicating abbreviations by capital letters as in *Chemical Abstracts*, and by means of key letters the number and date of the first and last available volumes and the library in which each is made available. Then follow 9 pages listing chemical books, including A. C. S. monographs, government publications, pharmacopœias of various nations and experiment station bulletins."

OBITUARY.

DEATH OF MRS. F. B. KILMER.

Mrs. Frederick B. Kilmer, wife of our highly regarded fellow-member, died December 31st, at the family home in New Brunswick, N. J. Mr. and Mrs. Kilmer are the parents of Joyce Kilmer, the famed poet, who was killed in the World War.

At the time of her death Mrs. Kilmer was engaged on a book entitled, "Flowers for His Grave, Culled by His Mother."

Mrs. Kilmer was also the author of "Memories of My Son, Sergeant Joyce Kilmer," "Leaves from My Life," "Whimsies" and "More Whimsies."

She was a member of the Authors Club of New York, the Poetry Society of America and the Penwoman's Club.

Mrs. Kilmer was born in Albany, N. Y., and educated in Binghamton. In 1871 she was married to Dr. Kilmer. The couple had four children, all now dead.

In September 1929, Mrs. Kilmer took part in the ceremonies dedicating Joyce Kilmer Square, Kings Highway, Avenue Q and East Twelfth Street, Brooklyn; telling of her visit to her son's grave in a French military cemetery, and reciting "Trees," her son's best known poem.

Sergeant Joyce Kilmer of the 165th Infantry was killed in action in France on July 30, 1918, in the battle of the Ourcq. He had been on the staff of the Sunday Magazine of THE NEW YORK TIMES.

Dr. S. W. Stratton died October 18th, from a heart attack at his home in Boston. Dr. Stratton drafted the bill providing for the National Bureau of Standards and of which he became the head. In 1916 Dr. Stratton persuaded Dr. H. V. Arny to secure the presence and cooperation of representatives of leading American associations to consider the general use of metric weights and measures; this resulted in the formation of the Metric Association.

Mrs. J. L. Spannagel, mother of **Mrs. Laura E. Whelpley,** widow of the late Dr. H. M. Whelpley, died at the home of her daughter, aged 92 years. Mrs. Whelpley is a member of the A. PH. A. and well known by many of its members.

We are advised of the death of Mrs. Elmer Wirth who passed away on December 27th. Professor and Mrs. Wirth returned from Holland last summer, after Prof. Wirth received his doctors degree at the University of Leiden. Mrs. Wirth is a graduate of the Literary College of the University of Michigan, and was married to Dr. Wirth in 1922. The husband and a daughter survive the deceased; sympathy is expressed to them.

T. A. Cheatham, Macon, Georgia, for 20 years drug inspector of Georgia and Secretary of the State Association for many years, died December 7th, aged 81 years. He had been in the drug business for more than 60 years, until his retirment some years ago.

Sympathy is expressed to Dean and Mrs. Edward H. Kraus and Mr. Edward T. Ramsdell in their bereavement by the death of the daughter of the former, the wife of the latter. Mrs. Margaret Ramsdell was fatally injured December 21st, at Wellesley, Mass., by the explosion of illuminating gas in the hallway of her home. Mr. Ramsdell is a theological student at Boston and Harvard Universities. He, also, was injured; the explosion was so severe that the brick front of the home was blown down and windows in surrounding apartments were shattered.

HERMANN THOMS MEMORIAL.

A memorial meeting was held in the large assembly room of the Pharmaceutical Institute of the University of Berlin, December 16th. The hall was filled to overflowing by pharmacists and other friends who came to do honor to the great German pharmacist, who died November 28th.

His experiences in various divisions of pharmacy and also in chemical manufacturing, and research found expression in his many writings and his crowning work is "Handbuch der praktischen and wissenschaftlichen Pharmazie;" this embraces the entire field of pharmacy. It is so vast in its conception and so well and thoroughly presented that it will be a lasting monument to Dr. Thoms; it is an essential work in every pharmaceutical library.

In the hall there were complete displays of the writings and works of the distinguished pharmacist and, as far as possible, every phase of his many activities received worthy recognition by speakers of prominence. Scientists, students and associates came to do him honor and place on record well-deserved tributes to this tireless worker, who almost to the last moment of his life was engaged in service for pharmacy. The honors given him on various occasions have been noted in this publication; the memorial meeting evidenced the high regard of his fellows, friends and co-workers.

SOCIETIES AND COLLEGES.

ARIZONA PHARMACEUTICAL ASSOCIATION.

Secretary Arthur E. Phelps, of the Arizona Pharmaceutical Association, in a recent issue of the Arizona *Bulletin* announced the election of officers of Arizona Pharmaceutical Association for 1931 to 1932: *President*, C. M. Wood, Glenndale; *Vice-President*, Joe Ryan, Globe; *Secretary - Treasurer*, Arthur Lee Phelps, Phœnix; *Chairman of the Executive Committee*, Jack Robertson, Phœnix. The same *Bulletin* also includes an encouraging message from the President-Elect, Clarence M. Wood.

Attention is called to the Tri-pharmaceutical Association convention made up of Arizona, New Mexico and West Texas. It is hoped that this convention will be a large one and it is to be held at El Paso, Texas, in March.

NEW JERSEY BOARD OF PHARMACY.

Governor Larson, formally awarded certificates to 118 pharmacists, who recently passed the examinations of the New Jersey Board of Pharmacy. The ceremonies were conducted in the Assembly chamber of the Capitol and attended by pharmacists from New Jersey and other sections. The principal speaker of the occasion was President A. L. I. Winne, of the N. A. B. P., who is also the Secretary of the Virginia Board of Pharmacy.

The Midwinter Meeting of New Jersey Pharmaceutical Association.

The midwinter meeting of the New Jersey Pharmaceutical Association will be held January 26th, at Hotel Walt Whitman, Camden, N. J. The business sessions will be followed by a banquet and dance.

COÖPERATION OF PHYSICIANS AND PHARMACISTS.

BY J. W. SLOCUM.

A year ago at the Iowa Pharmaceutical Association state convention the Iowa State Medical Society extended an invitation to the Iowa pharmacists to appoint a Committee to work with a similar Committee from their Society to promote matters of mutual interest as well as to engender a coöperative spirit between the two professions.

Such a committee was appointed and meetings have been held with both physicians and pharmacists in attendance. These have been harmonious and a spirit of good fellowship has prevailed.

As a follow-up program a physician was invited to speak at each of the eleven district meetings of pharmacists which were held in October. In each instance these addresses were well received.

A physician has also been invited to speak at the state convention of the Iowa Pharmaceutical Association which is to be held in Cedar Rapids in February.

A committee has also been appointed to prepare an exhibit of U. S. P. and N. F. preparations which will be shown at the annual meeting of the State Medical Society to be held in Sioux City in May. This committee is composed of George Judisch of Ames; Lee S. Coy of Cedar Rapids; John Berg of Cedar Falls, and Buell P. Bogan of Sioux City.

An active movement has begun in Iowa to tell the story of Pharmacy to the service clubs of that state.

During the year of 1931 a committee was appointed by the Iowa Pharmaceutical Association to obtain publicity for Pharmacy by sending speakers to the various service clubs, such as Rotary, Kiwanis and others. This story has been made very interesting by George Judisch, of Ames, who heads the committee. Mr. Judisch is a Rotarian and has addressed clubs at Nevada, Iowa and Oskaloosa, Iowa, during the last few weeks.

Several other service clubs are to be visited in the near future, among them being clubs in the cities of Fort Dodge and Webster City.

The comments upon this work so far have been entirely favorable and the committee intends to cover as much of the state as possible during the year of 1932.

IOWA PHARMACEUTICAL ASSOCIATION.

Iowa Pharmaceutical Association will convene at Cedar Rapids, February 16th–19th. In connection with that there will be a drug show. An elaborate program both of entertainment and business has been prepared. There will be present President Walter D. Adams, of the A. Ph. A., and John W. Dargavel, President of the N. A. R. D. The President-elect of the A. Ph. A., W. Bruce Philip, has also consented to be present and will deliver an address. Another speaker of prominence on the program is Prof. Paul C. Olsen.

The following have been elected officers of the University of Wisconsin Student Branch

of the A. PH. A. *President*, Edward J. Ireland, Madison; *Vice-President*, Norman J. Glanders; *Secretary*, Harvey A. Kimball, Racine; *Treasurer*, Vincent, Wasz, Chicago.—See Council Letter of this issue of the JOURNAL.

FIRST AID WEEK WINDOW DISPLAY.

Secretary E. L. Newcomb announces that "First-Aid Week Window Display" may now be obtained from wholesale druggists. First-Aid Week is March 13th–19th and druggists are urged to make full use of the opportunity the occasion affords. Publicity in local newspapers will add much to the interest which will result through the use of the poster. Secretary Newcomb and the Committee suggest that City and State officials be requested to aid in giving information.

The annual year book, representing the printed proceedings of the 1931 Annual Convention of the N. W. D. A., held at Atlantic City in October, is being mailed to all members of the Association. This volume, in addition to containing the new alphabetical and geographic membership roll of all wholesale and manufacturing members of the Association, corrected to December 1, 1931, and including names of all officers of all firms, and other general information, also contains a complete stenographic report of the proceedings of the convention and full reports of the various committees and the recorded action of the Association on various recommendations and resolutions.

MINNESOTA PHARMACEUTICAL ASSOCIATION.

Minnesota Pharmaceutical Association will hold its annual meeting at Nicollet Hotel, Minneapolis, February 10th–12th. Among the speakers of the convention will be Secretary Samuel C. Henry, and Governor Floyd D. Olson is scheduled as a speaker for the banquet. President Walter D. Adams, of the A. PH. A., hopes to be present.

PURDUE UNIVERSITY.

The second annual Druggists' Business Conference will be held at Purdue University, February 24th–25th; meetings are to be held in Memorial Union Building. These conferences give a good opportunity to Indiana druggists to discuss their business and professional problems. The discussions will be participated in by retail pharmacists.

H. W. Heine, of the Purdue University pharmacy staff, will present a brief course in show-card writing and window trimming.

LEGAL AND LEGISLATIVE.

DRUG STORE SURVEY WORK TO BE REVIEWED.

The National Drug Store Survey Committee will meet in Washington, January 26th, to discuss the closing activities of the St. Louis drug store survey of the Department of Commerce and to arrange for a general industry conference in St. Louis, April 18th.

Field work in St. Louis will be completed with a final inventory, April 1st, although analysis of statistics and publication of reports will occupy an additional year. However, at least two chapters of the study, on store arrangement and causes of bankruptcy, are expected to be published in pamphlet form by the time of the April meeting, and other phases will be so far advanced that members of the drug industries who care to attend can be given a good indication of the final results.

The Washington meeting is primarily for the committee in charge, and reports will be made by a number of members of the survey staff. The general progress of the work will be discussed; the financing of the survey reported on; and there will be detailed consideration of those phases of the survey farthest advanced, particularly store arrangement, failures, prescription business and customer problems.

NARCOTIC *VS.* DRUG.

We are appreciative of the coöperative effort of the *U. S. Daily* to use the term "narcotic" or "narcotic drug," instead of the term "drug," when the former is referred to. Other publications have taken related action; pharmacists can bring about a general acceptance of such designation.

S. 1201.

Mr. Copeland introduced the following bill; which was read twice and referred to the Committee on Agriculture and Forestry.

A BILL.

To extend Section 8 of the Food and Drugs Act of June 30, 1906, as amended, to the false or deceptive advertising of drugs.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled: That Section 8 of the Act entitled "An Act for preventing the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein, and for other purposes," approved June 30, 1906, as amended, is further amended by adding immediately following the end of paragraph three under the heading "In the case of drugs," a new paragraph to read as follows:

"*Fourth.* If, in any manner, or by any means whatsoever, it, or the ingredients or substances contained therein, or the curative and therapeutic effect of such article or its ingredients or substances, are falsely or deceptively advertised, represented or described in any Territory or the District of Columbia, or in any State to which such article is shipped or delivered for shipment from any other State, or from any Territory or the District of Columbia, or from any foreign country, no such advertisement, representation or description shall be held to constitute misbranding for a period greater than six months after such advertisement, representation or description was made or published."

CAPPER-KELLY BILL HEARING.

Senator Arthur Capper and Representative Clyde Kelly desire that all friends of the Capper-Kelly Fair Trade Bill immediately urge the chairman and members of the Senate Interstate Commerce Committee to have an early hearing on *S. 97*.[1] This committee is composed of:

James Couzens, of Michigan, *Chairman;* James E. Watson, of Indiana; Ellison D. Smith, of South Carolina; Simeon D. Fess, of Ohio; Key Pittman, of Nevada; Robert B. Howell, of Nebraska; Clarence C. Dill, of Washington; Jesse H. Metcalf, of Rhode Island; Burton K. Wheeler, of Montana; Otis F. Glenn, of Illinois; Harry B. Hawes, of Missouri; Smith W. Brookhart, of Iowa; Robert F. Wagner, of New York; Hamilton F. Kean, of New Jersey; Millard E. Tydings, of Maryland; Daniel O. Hastings, of Delaware; Alben W. Barkley, of Kentucky.

[1] The hearing will be held Monday, January 25th.

DRUGGISTS-LIABILITY FOR SALE OF HARMFUL MEDICINE.

A Minnesota druggist who obtains from a manufacturer medicine containing poison in quantities harmful to the human body which he does not sell in the original package of the manufacturer or under the name of the manufacturer but sells under his own name with a label stating that it was manufactured or prepared for him, cannot avoid liability for injuries sustained by a person for whom it is purchased in taking the medicine on the theory that it is "proprietary" medicine under a Minnesota statute which provides that a druggist shall be responsible for all drugs, chemicals and medicines sold by him except proprietary medicine and other articles sold in the original packages of the manufacturer; proprietary medicine, within the meaning of such statute, is medicine sold on the reputation and standing and under the name of the manufacturer, and a druggist, in selling in his own package under his own name with a statement that it has been manufactured or prepared for him, medicine which he has obtained from a manufacturer, assumes a responsibility equivalent to that of the manufacturer. Tiedje *vs.* Haney, *et al.* (Minn. Sup Ct.)—6 *U. S. Daily*, 2584, Jan. 15, 1932.

NARCOTIC LAW ENFORCEMENT INVESTIGATION IS PROPOSED.

A House investigation of narcotic enforcement conditions is proposed in a resolution introduced by Representative Loring Black of New York. The proposal is an outgrowth of criticisms made some two years ago by Federal grand juries in New York City, prior to the time of the establishment of a separate Bureau of Narcotics.

THE DRUG TRADE'S FUND FOR N. Y. UNEMPLOYED HEAVILY SUBSCRIBED.

Approximately $70,000 has been collected by or pledged to the fund for the relief of unemployment gathered by the Drug and Pharmaceutical Division of the New York Emergency Unemployment Relief Committee. Before the work of the division is completed it is expected that the fund will be swelled by added contributions from members of the trade who are still making up their contributions. This year, for the first time, the drug and pharmaceutical field was assigned a separate division in the work of relieving unemployment distress.

BOOK NOTICES AND REVIEWS.

Die Fabrikation Pharmazeutischer und Chemiscitechnischer Produkte. By DR. J. SCHWYZER, published by Julius Springer, Berlin, Germany. Price RM. 42.

The author is known to pharmacists by his work on the alkaloids. He states that the book is not an encyclopedia of chemical technique, but a large number of manufacturing processes are thoroughly discussed.

The book is divided into six parts; namely, Inorganic Products, Aliphatic Products, Aromatics, Alkaloids, Miscellaneous Products, and a division dealing largely with methods and apparatus. The work of the author on alkaloids has been embodied in this volume.

In the first chapter a number of pages are devoted to bismuth and its preparations, the bromides, iodine, iron and mercury compounds; preparations of silver require a number of pages of the second chapter. The details of the manufacture of such chemicals as sulphonal and related chemicals are discussed. The chapter on aromatics requires nearly forty pages, of which ten pages are given to vanillin. Other items in the chapter are, acetanilid, anesthesin, benzaldehyde, salicyclic and tannin compounds.

The chapters on alkaloids is an important one; about 130 pages are given to this. Under caffein some attention is given to caffein-free coffee.

Under miscellaneous subjects manufacture and properties of charcoal are considered, and distillation receives considerable attention.

Under general subjects various methods of manufacture and apparatus are considered.

The work, of course, has greatest value for the manufacturer, and as a book of reference has value in the libraries. The author has drawn on his experience and information in the preparation of the book; it evidences care and knowledge of the subjects, and the makeup, binding, etc., of the volume are very good.

Textbook of Pharmacy. By I. V. STANLEY STANISLAUS, B.Sc., Ph.G., Ph.D., Pharm. D. Of the Faculty of Brooklyn College of Pharmacy of Long Island University, Special Lecturer on Drug Chemistry, Temple University School of Pharmacy. D. Van Nostrand Company, Inc., New York, N. Y., 1931. xii + 736 pages. Illustrated. 6 x 9 in. Price $7.00.

This book is intended as a textbook on the principles of pharmacy (no attempt being made to cover commercial pharmacy or to outline a definite laboratory course) and as a reference book for the pharmacist and physician. The illustrations are grouped at the back of the book.

The book is divided into six parts. Part I, General Considerations of Pharmacy, included definitions, weights and measures, the balance, pharmaceutical arithmetic and thermometry. Part II, Theoretic Pharmacy, deals chiefly with the fundamental operations of pharmacy, such as comminution, solution, clarification, evaporation, distillation, sublimation, extraction, expression, etc., and includes also a discussion of the chemical constituents of plant drugs. Part III, Official Preparations, covers the various types of pharmaceutical preparations. Each type of preparation, such as elixirs, syrups, etc., is described and tables are given showing the Latin title, English title and synonyms, amounts of principal ingredients in 100 cc. or Gm., and usually some comments as to uses and dose. Part IV, Pharmacology, opens with the therapeutic classification of drugs, and definitions of chemical terms followed by syllabic tables of drugs official in the U. S. P. X and N. F. V and the newer remedies, including "most of the items passed upon by the Council of Pharmacy and Chemistry of the American Medical Association." Biologicals, organic drug assays and toxicology are also discussed. Part V, Magistral or Dispensing Pharmacy, includes chapters on The Art of Dispensing; Examples of Prescriptions with Incompatible Ingredients, Including "Types" of Pharmaceutical Preparations; Homeopathic Pharmacy; Hydrogen-Ion Concentration; Outline of the General Methods for Preparing Salts; Methods of Preservation; Relationship between Chemical Structure and Physiological Action; Pharmacal Problems and Exercises. Part VI includes a general summary of state pharmacy laws, with a more detailed discussion of the New York laws. The federal laws and regulations concerning narcotics and alcohol are summarized.

One of the strong points of the book is the effort which has been made to present pharmacy from the standpoint of modern science, as evidenced by the discussion of colloids, hydrogen-ion concentration, relationship between chemical structure and physiological action, etc. The chapter on extraction of vegetable drugs is particularly well presented. Among the features especially helpful to the practicing

pharmacist are the tables of maximum doses and of newer remedies, and the glossaries of uncommon words. The various tables, including one on group doses, are convenient for review by the student. The book is printed in clear type on good paper and is of convenient size.

Typographical errors are rather numerous, even for a first edition; some of these would not readily be detected by the student, as for example on page 213, lines 6 and 13, where "sodium chlorate" is twice specified in place of "sodium chloride." Likewise on page 216 Compound Acetanilid Powder is listed as containing sodium carbonate, rather than the bicarbonate. On page 209 the synonym "I.Q. and S." is given for Elixir of Ferric Pyrophosphate, Quinine and Strychnine, rather than for the Elixir of Iron, Quinine and Strychnine as specified in the N. F. In the table of official collodions on page 292, Collodium Cantharidatum is listed, though it is no longer official, and the following N. F. collodions are omitted: Collodion of Sulphonated Bitumen; Compound Salicylic Collodion. The table of U. S. P. Solutions is omitted entirely, although a table of N. F. solutions is given. On page 307, the maximum dose of arsenous acid is given as "1/8 gr.; 0.1 Gm." rather than as "1/6 gr.; 0.01 Gm."

A historic fallacy, which originated with a prominent American pharmacist of a generation ago, is perpetuated on page 167, where it is stated that in supersaturated sugar solutions made by heat, the crystallization which takes place on cooling "usually goes beyond the point of saturation, yielding a solution less than saturated."

A desirable feature of the book is the encouragement given to direct use of the U. S. P. and N. F. by the student, by omission of the quantitative formulas of these books, the discussion being thus directed chiefly to fundamental principles and to comments.

This book will be a useful addition to any pharmaceutical book shelf, and will be of interest to those teachers who have felt that pharmacy books have been too unwieldy, with too much repetition of material which is in the U. S. P. and N. F. and which should be sought there by the student.—WILLIAM J. HUSA.

Recent Advances in Analytical Chemistry, Vol. II, Inorganic. By C. AINSWORTH MITCHELL, editor, and NORMAN EVERS, S. G. CLARKE, W. R. SCHOELLER, A. T. ETHERIDGE, BRYNMOR JONES, A. R. POWELL, JANET W. BROWN and J. W. H. JOHNSON, contributors. Published by P. Blakiston's Son and Co., Inc., Philadelphia, 1931. XIV + 452 pages, 26 illustrations. Price $3.50.

The literature pertaining to advances in analytical chemistry increases so rapidly that it is impossible for the busy analyst to keep informed of progress except in a very specialized field. This volume prepared under the editorial direction of one so well qualified as the editor of *The Analyst* and contributed to by a number of experts in restricted fields should be of value to all persons engaged in practical analysis or in the teaching of analytical chemistry. Considered in conjunction with Volume I published in 1930 and dealing with recent advances in analytical organic chemistry, the work comprises a comprehensive survey of the progress made in the development of qualitative and quantitative methods during the past ten years. In many cases, concise working directions of new methods are given.

The subject matter of the book is subdivided into 16 chapters. Thirteen chapters are given over to the consideration of the detection and determination of the common and rare elements and gases. One chapter is devoted to each of the following subjects: Hydrogen-ion concentration, microchemistry, and water and sewage analysis. In the chapter on microchemistry, the progress in the analysis of inorganic as well as organic substances is reviewed. In the chapter on water and sewage analysis, an extended list of the botanical and zoölogical organisms in relation to pollution is given which is probably more complete than any such list found in references written in the English language.

Working details of new qualitative and quantitative methods are not given in every case, but a critical survey of published work is presented with very numerous references to the original literature. A bibliography is included after the consideration of each subject which might be improved by giving the name of the publisher.

The advances in analytical chemistry surveyed in this and in the preceding volume are made available in convenient form and at an opportune time for study by those engaged in the revision of the chemical monographs of the United States Pharmacopœia and of the National Formulary.—GLENN L. JENKINS.

Quantitative Chemical Analysis, an Intermediate Textbook. By FRANK CLOWES and J.

BERNARD COLEMAN revised by D. STOCKDALE and J. DEXTER. Thirteenth edition, 1931. Published by P. Blakiston's Son and Co., Inc., Philadelphia. XIV + 605 pages, 133 illustrations.

It was claimed for the earlier editions of this book, the first of which appeared in 1891, that it was useful to the advanced student, to the consulting and analytical chemist, and that it was in a large measure a work of reference. With the appearance of many specialized texts and comprehensive reference works in various fields of analytical chemistry, the value of a book such as this has decreased markedly. In the work of revision, the authors thought that it would be best not to change the text greatly since, in its present form, it is of value as an intermediate textbook to give advanced students a preliminary knowledge of the more important special processes used in the various branches of analytical chemistry. Little change has been made in the text except certain additions which bring in modern methods. Part I which deals with the preliminary and general operations required in analysis has been left practically unchanged. Parts II and III devoted to gravimetric and volumetric analysis, respectively, have been modernized by the addition of such processes as the use of Devarda's alloy in the estimation of nitrates, the use of titanous chloride in volumetric work, precipitation of copper and zinc as thiocyanates and their estimation by volumetric or gravimetric methods, and the use of an internal oxidation-reduction indicator in the estimation of iron and zinc. The descriptions of colorimetric, electrometric and electrolytic methods which were formerly scattered throughout the book have been collected and amplified in Part IV. Part V treating of the general analysis of inorganic and organic materials such as alloys, ores, steel, coal, fertilizers, water, milk, sugar, soap and fats, has been changed little and has been left incomplete in many cases in order to avoid undue enlargement of the volume. Parts VI and VII dealing with the determinations of the molecular weights of organic compounds and volumetric gas analysis have not been changed greatly. In Part VIII, the table of atomic weights, results of typical analyses, buffer solutions, alcohol per cent, weights and measures, etc., have been recalculated and added to. An inconvenient arrangement is brought about by placing the index between tables near the back of the book.

Many analysts will be pleased to see the retention of the scope included in former editions in the revision of this well-known treatise. A great number and variety of analytical processes have been considered fully or in part. The authors do not claim that the book is a complete reference, consequently they include a classified list of works in specialized fields for consultation by those wishing complete methods and details. The book is printed in clear type on good paper and is well bound.—GLENN L. JENKINS.

LIST OF TRADE NAMES PREPARED BY A. D. M. A AND A. P. M. A.

A list of trade names in use by member firms of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association has been prepared under the auspices of the Patent and Trade-Mark Committees of the respective groups.

The purpose of the compilation is to furnish information in the preliminary consideration of new trade names. It has been revised to August 1, 1931.

It is the desire of the Associations that the booklet receive the widest possible distribution not only among members but among all others interested in this important field, including firms and individuals identified with allied organizations, trade-mark attorneys and association trade-mark bureaus.

Copies may be obtained from Carson P. Frailey, Executive Vice-President and Secretary, American Drug Manufacturers Association, Albee Building, Washington, D. C., or from Clarence W. Warner, Secretary, American Pharmaceutical Manufacturers' Association, care of The Maltbie Chemical Company, 246 High Street, Newark, New Jersey, at 25¢ each.

"Nos Plantes Medicinales de France." Tenth Series. 8 sheets. Price per set 3 francs. L'Office National des Matières Premières, 12, Avenue du Marne, Paris.

These stiff paper sheets, which measure $7^1/_2$ in. by $5^1/_4$ in., bear on the obverse a figure of a medicinal plant executed with remarkable fidelity to nature of form and color, and on the reverse a miniature monograph of the plant. The specimens illustrated are black currant, horseradish, orris, flax, birch, coriander, caraway, fumitory and alder. The parts figured in most of the illustrations are the root or root-stock, the aerial stem, leaves, flowers and fruits, and in some cases diagram-

matic or microscopic sections of members of the plant. A number of these illustrated plants have heretofore been published and copies of the series may be obtained from the publishers.

ILLUSTRIERTER APOTHEKER KALENDER.

This is compiled by Dr. Fritz Ferchl, manager of the Marien-Apotheke in Wittenwald, Bavaria, and is published by the Deutsche Apotheker Verein in Berlin. The present one for 1932 is the seventh edition.

In a review of this Kalendar at the January meeting of the New Yorker Deutscher Apotheker Verein, Prof. Otto Raubenheimer of Brooklyn made the following recommendations:

1. The pages of this Calendar should be numbered.
2. An Index with page numbers should be added.
3. The different pictures should be classified.
4. America and especially the United States should be represented by various photos pertaining to pharmacy. In so doing the sales of this Calendar among pharmacists in the United States would greatly increase.

LIBRARY FOR HISTORY OF PHARMACY.

The first distinct Library for History of Pharmacy was formally opened on December 9, 1931, in Berlin. It is housed in The Institute for History of Medicine and Natural Sciences, part of the University.

This Library was created by the "Gesellschaft fuer Geschichte der Pharmazie" and the "Deutsche Pharmazeutische Gesellschaft."

Let us hope that such libraries will also be established in the United States, as History of Pharmacy is certainly a subject which deserves such recognition.—O. R.

NATIONAL DRUG STORE SURVEY.

A meeting of the National Drug Store Survey Committee will be held December 26th in the Conference Hall of the new Department of Commerce Building in Washington. The following is the detailed program of the day, Robert L. Lund, *Chairman:*

"Report of the Survey Staff," H. C. Dunn.
"Work in Progress," Wroe Alderson.
"The Drug Store Customer," R. B. Aiken.
"Conserving the Capital of the Druggist," Victor Sadd.
"The Trend of Prescription Business," F. A. Delgado.
"Modernizing the Drug Store," Edwin B. George.
"The New Building and Our Service Program," Dr. Julius Klein.
"The Model Store Competition."
"Financial Report."
"Tentative Program and Discussion of April Conference."
"General Discussion."

Charles Morgan, member of the AMERICAN PHARMACEUTICAL ASSOCIATION, will celebrate the diamond anniversary of his birth on February 12th. He has been elected Honorary President of the Alumni Association of the Pharmacy School, University of Maryland. The *Maryland Pharmacist* for January contains a full-page picture and a comprehensive sketch of the veteran.

TRAVELING FELLOWSHIPS FOR STUDY IN SCANDINAVIA.

The American-Scandinavian Foundation will award to students of American birth a number of traveling fellowships for study in the Scandinavian countries during the academic year 1932–1933, each carrying the stipend of $1000.00. Graduate and younger students and professors in American colleges are especially invited to become candidates, and it is preferred that applications be considered first by authorities in the candidate's institution. Application papers, including letters of recommendation and a photograph, must be filed before March 15th at the office of the foundation, 25 West 45th St., New York, N. Y.

THE KIRKLAND BILL.

The bill introduced by Senator Kirkland, SB 1131, has been read twice and has been referred to the Committee on Agriculture. If passed the bill becomes a law, effective January 1, 1932. It provides for the inspection and registration of agricultural insecticides. It requires that an application for licenses be made annually. Other important provisions of the Bill would require retail manufacturers to list in their applications for license the ingredients contained in their products together with the percentage of each included in the contents.